A National Valuation Evidence Database:

The future of valuation data provision and collection

Steven Rowley

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A pleasurable experience? The answer to this often asked question is always difficult, it is almost as difficult as providing explanations to the even more frequently asked questions of "Haven't you finished yet?" or the "Why don't you just get it out of the way?" A thesis is something it is impossible to just get out of the way, it is the way, it dominates everything, at least everything you let it. Still to start with an idea and end with doorstop, hopefully a well read doorstop, is a strange mixture of frustration, suffocation but ultimately satisfaction.

One thing is certain, writing a thesis can, at times, be a very lonely experience and those that supported, dragged or just helped me through it deserve all the thanks it is possible to muster. I am thinking in particular of my supervisors, Peter Fisher and Alison Holmes who, after all, had to read this epic, sorry, and who remained confident that I would eventually finish, at least I think they did. Also thanks to them for providing me with sufficient teaching to keep the bank from my door, if not peering through my window. Peter Dale also deserves a mention for he too had to read this, still he needs something to do on all those overseas trips.

Special thanks to all those I have shared offices with over the years, so many offices. Sharing the pain and occasional joy of a PhD with others in a similar position is a necessity, otherwise I am not sure we would all still be sane today, the odd exception of course. Also thanks to those close to me, my family and Kirsten, without them I am sure I would not be writing this.

So is a PhD a pleasurable experience? Looking back the answer has to be yes, at least for the first three years anyway.

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List of acronyms

ANN	Artificial Neural Networks
BS7666	British Standard No. 7666
CBR	Case Based Reasoning
CSM	Chartered Surveyor Monthly
DCF	Discounted Cash Flow
ERP	Estimated Realisation Price
FMR	Full Market Rental Value
IPD	Investment Property Databank
ISVA	The Incorporated Society of Valuers and Auctioneers
LVED	Local Valuation Evidence Database
MRA	Multiple Regression Analysis
NGDF	National Geo-Spatial Database Framework
NLIS	National Land Information Service
NVED	National Valuation Evidence Database
OCDS	Office Comparable Database System
OMV	Open Market Value
OS	Ordnance Survey
PC	Personal Computer
PPSP	Professional Property Service Providers
RICS	Royal Institution of Chartered Surveyors
RVED	Regional Valuation Evidence Database
ScotLIS	Scottish Land Information Service
SPR	Society of Property Researchers

UPRN	Unique Property Reference Number
VOA	Valuation Office Agency

Abstract

The commercial property market requires a professional to estimate market price due to its inherent inefficiency. The role of the property valuer is to collect disparate market information, collate and analyse it in order to produce a figure which estimates the market price of a property interest. Inaccurate price estimates compound market inefficiency.

The main source of information available to valuers are similar transactions that have recently taken place in the property market. Collecting and analysing this objective evidence permits the estimation of property price. However where this evidence is unavailable, limited, too remote or out of date the valuer is forced to estimate market price using his/her subjective judgements of prevailing market levels based on professional skill, knowledge and experience. Such subjective judgements allow substantial scope for error and this margin of error may only be reduced through the analysis of plentiful objective evidence. Where plentiful objective evidence does exist the valuer is more likely to produce an accurate valuation, and such accuracy is vital to avoid compounding market inefficiencies.

Available objective evidence is limited by the number of transactions that have occurred in the market and further constricted by the unwillingness of clients to release such evidence into the public domain and a prevailing wish for surveying firms to protect their information advantage in a market sub-sector. Releasing currently unavailable evidence into the public domain through the pooling of private sector data will increase the objective evidence base available and reduce valuation error. Survey research undertaken during this thesis determined that 63% of practising valuers are in favour of valuation data release and pooling and only 10% of the same population believe there is always enough evidence to produce an accurate valuation, and this is in a buoyant market.

The optimum solution for the valuation profession is the release and pooling of evidence into a nationally accessible database known as a National Valuation Evidence Database (NVED). This NVED will record, store and allow access to comprehensive records of transactions

thereby providing valuers with increased quantities of good quality valuation evidence. Quality is assured through the use of on-line data recording standards necessary to promote accuracy and uniformity of data. This thesis developed and tested a database structure and set of data quality standards necessary for the basis of a NVED taking into account the identification of the problems of existing database systems and including the actual requirements of practising valuers. The final version was tested against existing systems and evaluated by practising valuers who believed it to be substantially more efficient, accurate, comprehensive and overall a significant improvement on existing systems.

The NVED could become an on-line data set of the National Land Information Service (NLIS) accessible from any networked computer. The NLIS will provide additional information necessary for the production of a valuation, for example planning data, socio-economic data and locational data, and will eventually allow for the provision of a GIS dimension improving the treatment of location within a property valuation.

The data contained within the NVED will also aid research into the development of computerised valuation techniques such as Multiple Regression Analysis and Case Based Reasoning. The large quantities of standardised data will permit the isolation of value characteristics and the development of case libraries permitting research on a much greater scale so improving the quality and applicability of such techniques.

A NVED constructed from private sector data and Valuation Office Agency data, if legislation were removed preventing such data release, will improve the objectivity of valuations, increase the quality of the valuation process and aid valuation research. 78% of valuers believe such a system will improve the valuation process.

Chapter 1 Introduction

Property plays a vital role in both the UK and world economies. It provides the physical location for the assembly of the factors of production and the exchange of goods. In the UK property is traded on the open market and as such is influenced by, and itself influences, the economic cycle . Indeed property cycles are closely related to economic cycles (Key et al 1994) and these economic cycles influence the UK as a whole. Thus the use of property and the exchange of property play a vital role in the economy.

With property bought and sold on the open market it is vital to ensure that such transactions lead to economic efficiency, that is the efficiency with which society uses its limited resources (Harvey 1987). If property is not exchanged efficiently this will affect the whole economy of the country. In a perfect market goods will be exchanged at the equilibrium price, where supply equals demand, and economic efficiency results. However the property market is not a perfect market in the sense that a perfect market is characterised by the transparency of information, a central market place and homogeneous goods. Every property is different, there is no central trading place for property and information resulting from property transactions is difficult to obtain. Hence it is very difficult to establish levels of supply and demand in a market, and the property market is characterised by many sub-markets, rendering the equilibrium price at which a property should trade extremely difficult to identify. It is therefore up to experts to gather available information relating to supply and demand in order to establish the equilibrium price for property so property is traded at this price and economic efficiency results. This is the task of the property valuer in producing the property valuation which attempts to predict, although under heavy constraints (Baum and Crosby 1995), the equilibrium price of a property.

Property valuation is reliant on data, these data describe the levels of demand and supply in a market in the form of the price of a recently traded properties. In its simplest form the valuation of a property will assemble information on demand and supply levels by

identifying the trading prices of similar properties in the market. Identifying the price at which similar properties were exchanged will inform the property valuer of the likely selling price of the subject property after account has be made for the differences between physical, legal and economic characteristics of the subject property and those properties already sold. These similar, recently sold properties are known as comparable properties (Fraser 1984) and comparable properties form the basis of the valuation evidence used by the valuer. Other factors which complete the definition of valuation evidence include local and national economic data, both macro and micro economic variables, data on the locality in which the property resides such as planning policies and transport links for example and socio-economic data such as demographic profiles (Wyatt 1995). The valuer will assemble all available valuation evidence in order to produce a property valuation. The technique of using comparable properties and other valuation evidence as the basis of a property valuation is known as the comparable method of valuation and is the simplest and most commonly used valuation methodology (Crosby 1991, Millington 1994).

This valuation evidence is vital to the valuer as without it there is no indication of levels of demand and supply hence it is impossible to estimate the equilibrium price of the property and promote economic efficiency. The ideal situation would see the valuer able to collect an abundance of comparable evidence to analyse and from which to extrapolate the value characteristics of the subject property and assemble its market value. Market value is the common definition to which valuers produce property valuations and it is described in detail in chapter 2. Briefly, it attempts to predict the eventual market price of the property which, if all evidence were available to the valuer, would equate to the equilibrium price of the property (Baum et al 1996). Unfortunately for the valuer, and the property market as a whole, valuation evidence is scarce due to reasons such as confidentiality constraints and competitive advantage (These issues are dealt with in chapter 5). Valuers therefore have difficulty in obtaining these data and have to rely on their own judgements to fill in the gaps which appear in available data.

Without data science is impossible. Without skill science is impractical. With both data and skill science can produce valid information. Debate surrounds the question "is valuation an art or a science?" If it is a science valuers require data and should inherently possess skill and therefore an ability to produce reliable valuation figures. If valuation is an art this data aspect becomes redundant and valuers will rely solely upon their skill and experience when producing a figure. Without an objective base of fact which stems from the use of comparable evidence (Crosby 1991, Fraser 1984), valuers are left without a starting point for the development of a valuation figure. Substantial subjective judgements are therefore necessary thus increasing the scope for error.

Literature suggests that a lack of data leads to an increase in the subjective element of a valuation and an increase in the scope for valuation error and variation (RICS 1994, Crosby 1991, Fraser 1984). This can be highlighted by an increase in the frequency of negligence claims against valuers when the economy is slow and few property transactions occur, known as a thin market (see for example South Australia Asset Management Corporation V York Montague Ltd [1996] 2 EGLR 93, HL and Zubaida V Hargreaves [1995] 1 EGLR 127). The concept of valuation accuracy revolves around the property valuer producing a property valuation that is above or below the true market value of the property, a concept the courts themselves have trouble defining (Crosby et al 1997). The level of error has been set, and varied, by the courts in such cases as Mount Banking Corporation V Brian Cooper and Co. [1992] 2 EGLR 142 and Singer and Friedlander Ltd. V John D. Wood and Co. [1977] 243 EG 212 and is loosely defined as being around 10% either side of the true market value.

Accurate valuations are important to clients as many lending decisions are based upon valuation figures and incorrect valuations may lead to incorrect lending decisions and major losses to the lender. If a client is sure a valuation is accurate this reduces the uncertainty and therefore the risk surrounding a property transaction. The importance of valuation accuracy is emphasised by the numerous studies which attempt to investigate whether valuations are or are not accurate (For example Cullen 1994, IPD/Drivers Jonas 1988/90, Huthcinson et al

1996, Matysiak and Wang 1995). Correct valuations also ensure that property is sold at or near its equilibrium price.

The availability of valuation evidence promotes objectivity within a valuation (Crosby 1995) and this is directly linked to valuation accuracy (Fraser 1984). Without valuation evidence the valuer is forced to rely on his/her own subjective judgements which may lead to errors and inaccurate valuations. The optimum way to improve the quality of valuation accuracy is to increase the quantities of available evidence available to valuers by removing the current constraints on data release.

Data is therefore the key issue in this thesis and as such it .concentrates on initiatives designed to improve the availability of transaction details and therefore comparable evidence. The release and pooling of data held by private sector surveying firms into an accessible form which is made available to all could improve the valuation process. This thesis investigates this possibility (see section 1.1). This thesis then develops a structure within which such data may be pooled and eventually accessed by all. Such a national database of valuation evidence should increase the availability of evidence, improve the efficiency by which it is collected and improve its quality by introducing data recording standards.

This research describes and discusses a new initiative designed to improve the efficiency and accuracy of the valuation process. The National Valuation Evidence Database (NVED) is a system that will comprehensively record the details of any property transaction for future use as comparable evidence by valuers. This research focuses on the office comparable database section of the NVED and constructs a working model to illustrate the recording, storage and manipulation of valuation, but specifically transaction, data. These data relate to investment properties, leasehold properties and vacant freehold properties. The NVED software differs from existing property data storage systems by permitting the recording of all property characteristics identified as having a significant influence on a property's value. Perhaps more importantly, the NVED provides a set of on-line standards for the recording of each

and every property data item and standardised data entries which ensure the accurate and uniform recording of property valuation data. If fully implemented the NVED will contain details of every property transaction in the country based upon comprehensive data sharing and pooling agreements between professional property service providers in both the private and public sectors of the property market. Such a database of transaction data will greatly increase the objective evidence base of the valuer and improve valuation accuracy.

The structure of this thesis gradually constructs the argument for the necessity of a NVED system. Section 1.1 describes the research hypotheses, objectives and methodology. Chapter 2 introduces the main concepts relating to the thesis as well as highlighting the role of property within the economy and the importance of valuations in the property market. Chapter 3 expands on the role of the valuation and the valuer and, in particular, the technical aspects of the valuation process such as the alternative valuation bases and the methodologies surrounding valuation production. The chapter progresses to examine the range of data necessary to produce a valuation and argues that an abundance of comparable evidence is an essential requirement of objective valuation analysis. Without such an objective base it is argued that valuers have to rely upon their subjective judgements which may lead to errors and valuation inaccuracies. The chapter concludes by reviewing the valuation accuracy debate so prevalent over recent years and then attempts to clarify the definition of an accurate valuation, something which has caused the profession and the courts considerable difficulty.

Large quantities of objective valuation evidence are necessary to produce accurate valuations so chapter 4 examines the current availability of these data within the property profession. This is achieved using a methodological structure comprising four distinct parts. First is a review of the current subject literature before several unstructured face to face interviews with key property market researchers. Following the unstructured interviews are semi-structured interviews with property valuers designed to collect data for the construction of a structured postal questionnaire survey to be used on a sample of the whole valuation profession. The application of this postal questionnaire is the final methodological

stage. The research methodology is outlined in detail during chapter 3. The questionnaire examines issues such as the availability of property data, attitudes and barriers to data release and pooling and reactions to the NVED concept. The remainder of chapter 4 and chapters 5 and 6 analyse the results of the survey.

Chapter 5 specifically discusses the concept of data release and pooling beginning with a discussion of its advantages and disadvantages. The majority of the chapter concentrates on these barriers to data release and pooling with a description of each before discussing the relevant results of the survey. The concludes with an examination of a recent survey concerning property data release commissioned by the RICS and assesses the implications of the results for the development of a NVED.

Chapter 6 addresses more technical issues surrounding a NVED including how it would operate in practice and how it would integrate with other technologies such as the internet, private intranets and especially the National Land Information Service (NLIS). It is argued that the NVED will operate with optimum efficiency as a data-set of the NLIS which will in turn provide valuers with on-line access to other data-sets vital to the production of a valuation. The NLIS will eventually provide the NVED with a Geographical Information System (GIS) dimension. This GIS dimension is vital to allow the quantification of the influence of location on property values, which will initially be subjective but eventually utilise specific techniques to calculate influences per property. Chapter 6 then emphasises the need for a standardised NVED structure vital for any on-line data system. Finally the chapter concludes by examining the attitudes of valuers to the concept of a NVED.

Chapter 7 describes some of the existing on-line data sources available to property professionals and reviews the literature surrounding the more important data initiatives such as the NLIS and National Geo-Spatial Database Framework discussing how they would relate to the NVED. Finally the chapter describes the future of property data collection for the valuer including the day to day use of the NLIS and NVED.

Chapter 8 incorporates an examination of existing private sector database systems including an analysis of their problems and shortcomings, illustrated by a case study, before describing the development of the NVED database structure and recording standards. Finally the database was tested by two surveying firms and the results of these evaluations are critically discussed.

Chapter 9 illustrates possible applications of standardised data contained within the NVED in addition to supplying the valuer with good quality, objective evidence. Computerised valuation methodologies such as Multiple Regression Analysis and Case Based Reasoning rely upon mass standardised data. This chapter describes the possible application of NVED data for research into these expanding areas with the ultimate aim of facilitating the development of such methodologies as aid the valuer and valuation process.

Finally chapter 10 recommends several research areas where further work is necessary for the advancement of knowledge, for example the piloting of a NVED system alongside the current NLIS Bristol pilot, before drawing together the conclusions of this research.

1.1 Research hypothesis, objectives and methodology.

This section describes the hypotheses of this research and the objectives that need to be met in order to test said hypotheses. It begins by outlining the main and sub hypotheses and then the seven objectives of the research. The methodology used to achieve the seven objectives and hence test the hypotheses is outlined in figure 1.1 and discussed in more detail at appropriate points in subsequent chapters.

1.1.1 Hypotheses

The hypotheses of this research revolve around two main issues, first the availability of valuation data and, second, the recording and retrieval of these data. There is one main hypothesis for each area and several sub hypotheses. These are as follows:

Availability of valuation data.

Main hypothesis. (HI)

The release and pooling of valuation data held by professional property service providers into a national database of valuation evidence will increase the availability of objective comparable evidence for the production of property valuations.

Relevant literature suggests (see chapter 2) that the greater the levels of objective evidence analysed for the production of a valuation and the fewer the subjective judgements necessary to fill in data gaps the more accurate the final valuation figure will be. If the availability of comparable evidence can be increased by pooling existing databases and recording future transactions into a database available to all valuers, objective evidence will increase. It is therefore necessary to examine whether such data pooling is feasible.

Sub hypothesis i (si)

There is insufficient evidence available to produce accurate valuations.

If it can be established that there are insufficient data available in the property market for the production of accurate valuations then it is essential to take action to increase these amounts of data. This will establish that there is a need to release and pool property data for use by all property surveyors and, in particular, property valuers.

Sub hypothesis ii (sii)

Valuers within private sector professional property service providers are in favour of releasing and pooling valuation data.

To increase valuation data availability it is necessary for professional property service providers (PPSP) to release currently secret valuation data and make it available and accessible to other PPSP. It is therefore necessary to test whether such release and pooling is actually possible. If it is possible to prove this sub hypothesis then the main hypothesis may then be tested.

Sub hypothesis iii (siii)

The valuation profession is in favour of the concept of a National Valuation Evidence Database.

Before continuing to develop a NVED structure and set of recording standards it is necessary to examine whether the valuation profession is in favour of the concept. Proving this sub hypothesis will show that the valuation profession is committed to a NVED and such an NVED is feasible, this is vital in order to test the main hypothesis.

By testing sub hypothesis i-iii it can be shown whether or not sufficient valuation evidence exists and, if not, that the valuation profession are willing to address the issue by releasing and pooling valuation data. If the profession is in favour of data release and pooling then are they in favour of a system such as a NVED to organise access to these data. If this is the case then tying all three sub hypothesis together will enable the testing of the main hypothesis and if none of the three sub hypothesis may be rejected it is unlikely that the main hypothesis may also be rejected.

Recording and storage of valuation data.

Developing the concept of the NVED further, in order to examine whether it is feasible it is necessary to test the following sub hypothesis.

Sub hypothesis. iv(siv)

It is possible to accurately and comprehensively record property transaction data using electronic means and data quality standards.

Once the feasibility of the NVED concept has been tested it is vital to examine whether it is possible to actually record transaction data accurately and comprehensively within a medium that facilitates the NVED, that is a computerised database that will allow the efficient recording and retrieval of transaction data for future use as comparable evidence. If this is not possible then a NVED cannot operate efficiently.

Sub hypothesis v (sv)

Existing methods of recording, storing and retrieving valuation data for comparable purposes can be and need to be substantially improved

Databases for the recording, storage and retrieval of comparable data already exist in PPSP but it is possible that substantial improvements are necessary in order to develop a software system that will facilitate a NVED. To examine this issue it is necessary to investigate current recording methods.

Sub hypothesis vi (svi)

Standardised data stored within the NVED can be used for a number of different purposes.

The information rich data that would be contained within a NVED has its main application for day to day property valuations but what other purposes, both in research and in practice, could such data be of use?

The research is split into two main sections. The first section investigates the need for increased quantities of data and whether data release and pooling is a possibility. The second section examines whether data release and pooling can be organised into an efficient national system such as the NVED. Testing all the sub hypotheses will enable the testing of the main hypothesis. The first section, chapters 2-5, deals with the main hypothesis and the sub hypotheses si-iii. The remaining chapters deal with the data recording issues tested in sub hypothesis siv-vi.

1.1.2 Research objectives.

In order to test the hypotheses outlined above the research needs to achieve several objectives. These objectives are described below and illustrated (as with the research methodology) in Figure 1.1.

Objective 1

To examine all relevant literature pertaining to the valuation process and in particular data needs, usage, availability, objectivity in order to identify any gaps in existing knowledge. Also to investigate valuation accuracy and variance to identify where specific valuation problems exist.

Objective 2

To examine current data availability, data accuracy, quality and completeness in order to assess the implications for the valuation process and identify any connections with valuation accuracy.

Objective 3

Investigate current attitudes in the valuation profession towards data release and pooling and the concept of a national database of valuation evidence. Also identify barriers to data release and pooling and possible ways to overcome them.

Objective 4

Develop the concept of a National Valuation Evidence Database and assess reactions of valuation professionals. Examine whether and in what way such a database would aid the valuation process.

Objective 5

If the case exists for the creation of a NVED then identify the requirements from such a system in terms of data and operational efficiency.

Objective 6

Design and create a database structure and set of recording standards that meet the data and operational requirements of practising valuers.

Objective 7

Examine possible applications of the data contained within a NVED system.

The achievement of all seven objectives will ensure that the hypotheses outlined above are thoroughly tested (to determine whether they should be rejected in order to revert to an alternative hypothesis) to enable the drawing of firm conclusions.

1.1.3 Research methodology employed.

To achieve the objectives and test the hypotheses it is essential to adopt a firm research methodology for each hypothesis and each objective. Alternatively it is possible to adopt a methodology for related objectives. Below is a description of the methodology employed for each objective and hypothesis, a more detailed description appears in the relevant chapters.

Literature review

Objective 1,4,7, Hypothesis i, sii

To establish the project background and gather information relating to the main research issues, those of the valuation process, data usage, valuation accuracy, subjectivity and objectivity in valuations it is necessary to examine existing literature. This literature review identifies areas in need of further investigation and the leading experts, both academics and those working in practice, who will need to be interviewed for further background data collection. Literature reviews are also necessary to examine new areas that become relevant when the research discovers results that move it in different directions.

Survey research

Main Hypothesis , Sub hypothesis si-iii and sv objectives 2,3,5

The survey research methodology is dealt with in depth in chapter 3 and appendix A and for this research the survey methodology structure outlined by Oppenhiem (1992) is adopted for the collection of primary data. Such a structure is defined by a number of

sequential stages. To test the main hypothesis and sub hypothesis i-iii it was necessary to conduct an extensive survey of the valuation profession. Before such a survey may begin it is prudent, and indeed defined by the methodological structure, to begin with unstructured interviews with key informants in the research area, in this case those who deal with valuation issues such as data usage, availability and valuation accuracy and within these interviews it was also possible to identify and examine existing comparable data recording systems. The methodology then builds from this base to construct semi and then structured interviews, in this case postal questionnaires are used, justified in chapter 3, used to collect large scale data from a wide range of respondents. Such detailed coverage of the valuation profession was necessary to incorporate differing views of the research issues in order to draw conclusions relating to the attitudes of the whole profession.

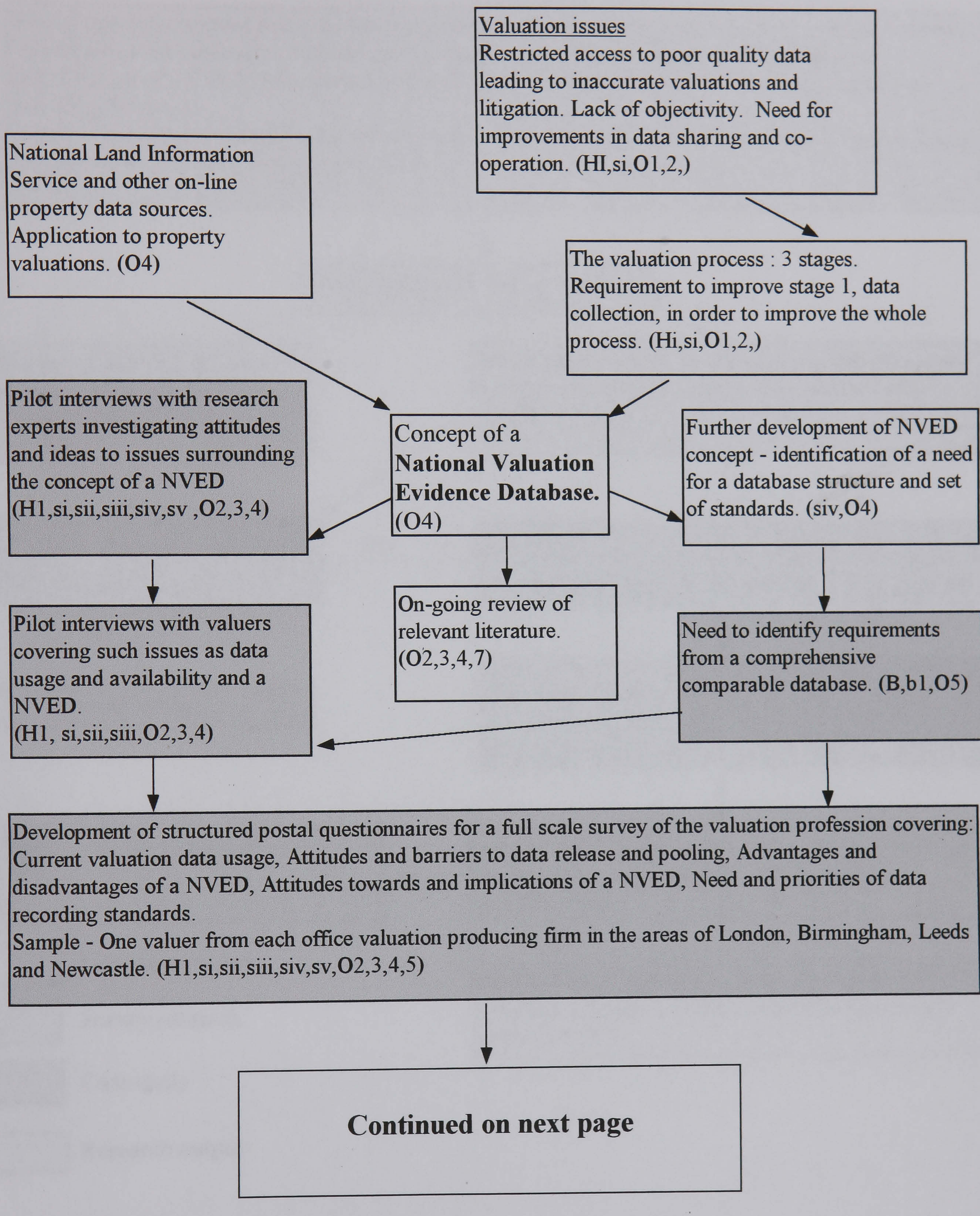
Case studies.

Main hypothesis, sub hypothesis iv and v, objective 6

Case studies allow detailed investigation of the reactions to and implications of particular areas of research. It is possible to select individuals, groups or organisations and use them to study specific scenarios or concepts. In this case the design of the NVED database and recording standards, the examination of existing recording systems and comparisons between the new and old systems are achieved through the use of two case studies. Each stage of the testing of sub hypotheses siv and sv was achieved using two PPSP who participated in the design of the database by suggesting data requirements and on-going modifications and then testing the final version, assessing its performance in comparison to existing systems and then examining the implications of a fully implemented NVED on the surveying profession. Whilst their views are individual, the nature of their organisations means that their views are likely to be replicated in the profession.

These three different methodologies were used to achieve the objectives and test the hypotheses that form this thesis. Figure 1.1 outlines the research programme and issues and illustrates where each research methodology is used and what objectives are achieved.

Figure 1.1. Research programme and research issues



Development of structured postal questionnaires for a full scale survey of the valuation profession covering: Current valuation data usage, Attitudes and barriers to data release and pooling, Advantages and disadvantages of a NVED, Attitudes towards and implications of a NVED, Need and priorities of data recording standards.
Sample - One valuer from each office valuation producing firm in the areas of London, Birmingham, Leeds and Newcastle. (H1,si,sii,siii,siv,sv,O2,3,4,5)

Responses coded and analysed

Identification of valuation data usage, sources and availability. Availability and accuracy of data assessed. (H1,si,sii,siii)

Identification of the level of support for data release and pooling. Identification of data requirements from a NVED. (siv,svi,O5)

Identify if there is a case for a national evidence database and is it feasible. (O5)

YES

Detailed development of database structure and valuation data recording standards and data organisation. (siv,O6)

NO

Report results

Case studies: Testing, modification and evaluation of the database using practising valuers in two firms.(siv,sv,svi,O6)

Application in practice (H1,si)

Final NVED software and recording standards ready for use in the recording and retrieval of comparable data.(O6,siv,sv)

Identification of applications to the development of valuation techniques. Identification of further research areas. (Svi, O7)

Literature review

Survey research

Case study

Research output

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Chapter 2. The Valuation Process

2.0 Introduction

In a commercial property valuation, data are by far the most important ingredient. Without data the valuer has no rational basis upon which to base the valuation figure. Research over the last twenty years has focused on the development of new valuation techniques and the improvement of existing techniques which are deemed by many to be irrational and illogical (Baum and Crosby 1995). The overriding aim of the property profession and the valuers within that profession is to improve valuation accuracy (RICS 1994). While new methodologies are researched it seems illogical to forget that existing valuation techniques are still used in practice on a day to day basis and these techniques are totally reliant on data.

The comparable method of valuation is the technique used by the majority of commercial property valuers and is viewed as the preferable method by the courts (RICS 1994). However, although this method is widely used it does rely on adequate quantities of data to be reliable and often these data do not exist. Indeed other valuation techniques widely used among the profession also rely on comparable data for their inputs, an example of this is the Discounted Cash Flow method.

The requirement of any valuation is therefore valuation evidence but this is an area often ignored in valuation research. Academic texts often state the necessity for data but fail to recognise that it is often the case that these data do not actually exist and valuers have to rely on their own judgements when producing a valuation. (Baum and Crosby 1996, Millington 1994, Rees 1992) While many writers do recognise the need for data (Fraser 1984) and the objectivity of approach that data permit (Crosby 1991) they do not discuss the implications for valuation accuracy when these data are not available. This chapter discusses the valuation process placing particular emphasis on data requirements and concentrating on the major problems that exist when these data are unavailable.

There are a number of reasons why a client will employ a specialist valuer to produce a property valuation. First, a valuation may estimate the market price or full rental value of a property so that it may be placed on the property market for sale or to let at an appropriate figure. Second, a valuer employed by, for example, a potential investor, may produce a valuation for a particular property to estimate its market price in order to identify whether it has been over or under priced given current market conditions. Third, valuations may be required for special circumstances for example insurance or taxation.

Valuations for insurance purposes will include the estimation of the market price of a property, the cost of totally rebuilding that property in its current state and the cost of developing a new but similar building on the same site in place of the existing building. Valuations for taxation assessments either calculate the rateable value of a hereditament for local taxation purposes or estimate the open market value (OMV) for capital gains or inheritance tax calculations after allowing for certain statutory assumptions and provisions. Other types of valuation include valuing a property as a "going concern" which includes the building itself and its associated business. Asset valuations are employed to display a property's value on a company's balance sheet and the estimation of vacant land value which involves identifying future development opportunities and producing valuation figures accounting for these possible developments. For these purposes it is very important for valuation to be accurate to instil confidence in any transaction and reduce uncertainty for loan transactions. Confidence in valuation accuracy will increase with the quantities and quality of evidence available.

The valuation of property for any of the above purposes requires similar evidence and, as mentioned, this evidence is the selling price of properties that are comparable to the subject property. This is especially true for the most common type of valuation, the estimation of the market price or rental value of the property. This thesis concentrates on valuations which attempt to estimate the OMV or the full market rental value (FMRV) of a property. It concentrates on the production of open market valuations (both rental and capital) for

commercial office property. The reasons for narrowing the range of valuation possibilities becomes clear as the thesis progresses.

The chapter continues by investigating the role of the valuer, the valuation and the various bases to which valuations are produced (see section 2.4) while remaining focused on the issues of data availability. It also investigates that, while data are so important, the lack of data standards in the profession hinders not only valuation accuracy but uniformity of approach. It examines valuation methodologies and the data required for the effective application of these methodologies. A discussion of objectivity attempts to explain why evidence is vital to the valuer and how, when there are gaps in this evidence or the evidence is out of date, the valuer uses subjective judgements to fill these gaps or, when evidence is scarce or unavailable, the valuer produces a valuation solely based on subjective judgements and the valuation process and resulting valuation figure are flawed. The chapter concludes by examining literature surrounding the debate concerning whether the valuations currently produced in the property market are, or are not, accurate.

2.1 The economic role of the valuer

In an efficient market the price of a good is fixed by the interaction of supply and demand and the resulting equilibrium price will also be the market price. However, in inefficient markets where supply and demand are unknown, price must be fixed by some alternative means. Where this price does not reflect the equilibrium price it will push the market away from equilibrium and the efficiency associated with such a concept. It is therefore necessary to try and accurately estimate the equilibrium price for a good (known as market worth of property (Crosby et al 1996)) to promote market efficiency. In an efficient market, identical goods trade at an identical market price so if a buyer is aware of the price of one good they can be sure that the price of an identical good is the same. Location and property characteristics mean no two properties are the same making price estimation problematic. A shortage of supply of, or an increase in demand for, a particular type of property will raise the market price of that property but if buyers and sellers are unaware of this information

there is little chance of them accurately estimating the market price of a property. There is therefore a need for a specialist to gather information on supply and demand levels which present themselves as vacancy rates, floorspace availability statistics and floorspace uptake rates and in the form of sale prices of similar properties. It is also necessary to collect other evidence, background evidence, such as general and local economic performance to estimate the market price of the property. This market price not only informs the seller of what he/she could expect to receive on the sale of the property but also informs buyers of the properties available to purchase which are within an acceptable price range or rental level.

It is only in markets where identical goods do not exist and supply and demand levels are difficult to determine that there is any need for a valuer. A valuer has to consolidate available evidence and apply skill and expertise to turn this evidence into an accurate valuation. For residential properties, the supply of properties for sale and the level of demand are readily identifiable from the national and local press in the form of monthly price changes and property advertisements. This will provide buyers and sellers with a rough guide to market performance. Information on price is easily obtainable from advertisements in the windows of Estate Agents and from press advertisements, even if it is only the asking price which will not necessarily reflect the market price. The characteristics of residential properties show greater similarities than those of commercial property so it is relatively easy to identify a property similar to the subject and obtain an idea of market price levels. Many sellers of residential property do this and place the property on the market without the aid of a professional valuation but often do require the use of a property agent due to market inefficiency. Banks also require professional mortgage valuations before they will lend with the property as the loan security and so believe an expert valuation is essential.

Property valuers are required for exactly the same reasons as valuers in other inefficient markets, for example the antiques market. Identical antiques are rare and where they do exist information relating to their price is scarce so the lay person only has a vague idea at best of the market price of the item as they have nothing to compare it against. An expert produces a valuation which provides guidance as to what the antique would sell for if placed

on the market. This opinion is given on the basis that the valuer is aware of similar items on the market, the supply, and the actual demand for such items. He/she is also aware, through past dealings, the dealings of colleagues and auction results, of the selling price of similar items. Assembling demand and supply data and altering the price of previously sold, similar items if available, for age, condition and market changes, the valuer produces a valuation figure. This is identical to the task of the property valuer in the commercial office property market. The valuer assesses demand and supply levels, identifies recently sold, comparable properties making suitable adjustments to the price of the comparable for the differing characteristics of the subject property, takes regard of external factors such as current economic conditions and finally produces a valuation figure. It is the heterogeneity in the commercial property market which makes it difficult for the lay person to produce an accurate valuation (Millington 1994).

If valuations are accurate and prices paid for property closely reflect the equilibrium price then the property has been efficiently allocated as no possible alternative uses for the property would provide the same level of investment return. If all transactions in a particular property sub-market occurred at the equilibrium level then it would improve the efficiency of that market. No properties would be over priced, reducing the number of vacant buildings and alleviating stagnation in that particular property market sector. Similarly no properties would be under priced, a situation which prevents revenue and investment return maximisation. Without the service of valuers in the real property market many transactions would be flawed because of the poor quality price information available to participants. (Estates Gazette 1996) Valuers therefore aid the working of the property market by not adding to its inefficiency. Valuers who provide poor valuation advice leading to over or under pricing of property effect the efficiency with which the market operates. The property market contributes to the general economic performance of the country so it is important that it is as efficient as possible. An article in the Estates Gazette article:

> *"From an economic standpoint the existence of valuers can be justified if the improved working of the market results in efficiency gains which*

> *outweigh the resources and costs employed in valuation."* (Estates Gazette 1996,p83)

Indeed prohibiting the placement of over or under priced assets on the market will result in efficiency gains and with such large sums involved in commercial property transactions it is likely that gains will outweigh the resources committed to valuations.

2.2 The role of the valuation.

There are two basic categories of valuation; capital valuations and rental valuations. A valuation can be defined as the estimation of the selling price of the "bundle of rights" embodied in a specific property. A capital valuation is the estimation of the market price of a property and a rental valuation is the estimation of the rental level, usually annual, of a particular interest in property. The purpose of a valuation is to estimate the selling price or rent of an interest in property in order to:

- bring buyers and sellers together,
- set a price level around which a transaction can be negotiated which should lead to welfare maximisation,
- allow comparisons of property with other goods in terms of cost and resulting social benefit,
- provide information for company's balance sheets,
- inform investment decision making, both in terms of bank lending decisions and institutional and individual investment decision making.

Each of these roles are now examined in more detail.

Bringing buyers and sellers together - Without the specialist knowledge of the valuer, buyers and sellers of commercial property would have little idea of the market value of a property. A buyer may be aware of the maximum price which he/she is prepared to pay for a particular property type and a seller may be aware of the minimum price he/she will

accept for a property but these are unlikely to reflect market values. The valuer estimates the market value of the property thereby explicitly informing the vendor of the likely selling price so the vendor can place the property on the market at a specific asking price informing any potential buyers of the price they would need to pay to purchase the property. In this way buyers and sellers are put in contact with one another and transactions negotiated.

Setting a level for negotiation - Estimating market value should lead to the negotiation of a transaction price around the equilibrium market level, but the final price will depend upon the negotiating strengths of the two parties. If goods are exchanged at the equilibrium price then the market is operating efficiently. Without the accurate estimation of the market price, buyers and sellers may negotiate and set a price that does not reflect the market level and will shift the market further away from equilibrium.

Comparison with alternative goods - If the market value of a property is not known in advance, any potential buyers are unaware of the exact opportunity costs of purchasing the property and thus foregoing goods of equivalent value.

Asset valuations - Organisations need to be aware of the value of their assets in order to satisfy shareholders. Property contributes to the value of an organisation as it is a tangible asset and if the organisation is valued, the property, both as a physical component of production and a value holding asset, will contribute to the value of the organisation as a whole.

Investment decision making - Institutions, individuals and organisations regard property as an investment as the market price of property, as with any other investment media, may rise or fall depending upon the physical and locational attributes of the property and any changes in the real property market. In order to compare the relative merits of investment in a particular property with investment(s) in alternatives such as Gilts or equities, knowledge of the market value of the property is essential. Banks, when lending for

mortgage purposes, need to be aware of the market value of a property in order to be sure that selling the property will realise a sum that will cover their initial capital loan. Without valuations or with inaccurate valuations, buyers and sellers are basing decisions to sell, accept a particular price or purchase at a particular price, on the basis of imperfect information. The role of the valuer is to provide this information so the seller maximises potential revenues or investment return and the buyer takes the optimum purchase decision and minimises opportunity cost. It is the mis-priced asset which allows buyers to purchase at levels under the market and obtain profits (abnormal profits) that would not otherwise be available if the property were correctly priced. The valuer also, when employed by a potential investor, has the function of identifying mis-priced assets in order to advise the investor as to where investment capital could be employed in order to receive these abnormal profits.

From the five different purposes of valuations explained above it is evident how vital valuations are in improving the efficiency of the property market.

2.3 Commercial property values

Property values are a function of several interacting variables. Market price is determined by supply and demand and if demand is low then so are property prices. If demand for commercial office space is low then investors in property will not purchase office properties as investments as they cannot guarantee future income returns and therefore the required return on their capital outlay. A high demand for office space will increase capital prices and rents. Supply is slow to respond to increases in demand as new properties take time to construct and switching existing properties from other uses requires refurbishment or redevelopment. Excess demand will rapidly increase prices and rents as was the scenario of the property boom in the late 1980's. With such high demand, property speculators will invest in the construction of new properties in an attempt to cash in on these high prices and rents so supply will eventually increase slowing down property price and rent rises. A contraction in demand will lead to an oversupply of property as it takes

time to switch the property to other uses and once a new development is complete alternative uses are limited. Supply is very slow to contract in response to demand and so price and rent falls can occur just as rapidly as price and rent rises. It is clear that the demand for office accommodation is the key factor in determining property prices and rental levels but the key factor in determining demand itself is the general performance of the national economy.

The demand for commercial property space is closely tied to the economic cycle and comparing property cycles with the general economic cycle shows a close correlation (Williams et al 1994). In favourable trading conditions, new organisations are created and existing firms expand demanding more office space. In unfavourable trading markets few new firms are created, existing firms downsize or cease trading so the reverse is true. The general state of the economy includes interest rate levels, inflation, the exchange rate, taxation rates and other macro economic variables which will all heavily influence the demand for property and therefore the market price and rental levels of all property types. This influence is not property specific and will influence the general price and rental levels of all property. The stronger the trading conditions then the stronger the demand for property and the higher the rents and prices. These absolute values rises and falls depend upon general demand levels. In addition to absolute values relative values, specific to each property, also influence value.

Relative property values are determined by a number of factors. Wiggins (1979) identified three groups of factors affecting property value, two of which are relative factors and the other absolute. The three factors are:

- National and local economic conditions.
- Physical factors external to the property including location and the provision of services.
- Factors integral to the property including physical, economic and legal factors.

(See also figure 2.1)

The more favourable the factor then the greater the demand for the specific property and the greater its capital or rental value. The RICS appraisal and valuation manual (RICS 1996) identifies the factors vital for the production of a valuation figure. Firstly, inspection of the subject property provides information not only on the physical features of the property and the location but also the provision of similar properties in the locality which may be on the market or may provide suitable comparable evidence. Secondly, the valuer will investigate and assess the legal factors relating to the property including lease terms and any rights over the property. Planning issues may also be of relevance as may have an influence on the future value of the property. All these factors, in combination with economic conditions will contribute to the property's value.

Location is often regarded as the biggest single influence on property value. Rees (1992) believed location was the most important value factor and Von Thünen (1826) stated that location alone determined the value of land. There is no doubt that location has a considerable influence on property values and this is easily illustrated by comparing rental levels for similar properties in Newcastle and Central London. Commercial property in Central London has always commanded prices and rental levels far in excess of areas such as Newcastle because of the advantages being located in an area densely populated by office accommodation so providing an ideal working environment, having an extremely large population to service and being part of the main financial market of Europe. The quality of location is dependent upon the accessibility of the property, the quality of the surrounding neighbourhood and services and the planning policy of the locality (Wyatt 1995). For example, without adequate transport links staff and clients will have difficulty reaching the property, an office property situated in the centre of an industrial estate will provide an unpleasant environment for both staff and clients and a property located in an area designated for industrial development will prove unsuitable in the future. Generally, companies which attract a number of clients to its offices will wish to locate in a particularly accessible location and the head office of a large organisation may require a prestigious address (Wyatt 1995). Smaller firms can often not afford city centre offices so

may locate in suburbs close enough to allow travel to and from public transport interchanges.

There are no commonly adopted ways of quantifying location and its affect on property value although Wyatt (1996) attempted such a quantification for retail property and Gallimore (1996) adopted statistical techniques to try to measure its influence. Valuers subjectively estimate the influence on location by comparing the subject property to comparable properties and making adjustments for the physical and legal features of a property before adding or subtracting a figure which will attempt to reflect the quality of the location. There is little doubt that with location being as great an influence as it clearly is on property values there must be substantial research aimed at developing more scientific methods of quantifying location.

Physical features of the property will also affect its value. Valuers will usually identify the value of a property per square metre so the size of the property will obviously determine its value in terms of its physical, legal and locational features. Other physical features that will influence property value are age and condition, the service provision, the availability of car parking and the general standard of the accommodation. A property with extremely favourable physical features will command a higher demand than a similar property with physical features of a lesser quality and will therefore have a greater market value. It is the task of the valuer to estimate the affect of the physical features on the overall value of the property.

Legal factors such as the length of a lease, the rent review clause, use restrictions and repairing covenants for example, will influence the rent payable by the tenant. Some legal features are, in fact, quantifiable to a certain extent. If a landlord lets a property and pays for external repairs, the rent will take account of the value of those external repairs and will reflect that fact in a rent above the rental level of an identical property on a full repairing lease. Demand for various lease terms will determine the rental level for the lease. Long 25 year leases used to be common but now shorter leases are more desirable to tenants.

Landlords offering 7 year leases will attract more demand for the property than an identical property with the landlord trying to let it on a 25 year lease. This higher demand will increase the rent payable on the property let on a 7 year lease.

Demand will depend upon general and local economic factors. General economic factors have already been discussed and these influence the demand for property over the whole country in a similar manner. Local economic conditions will influence demand when there are variations in the population density, demographic structure, property developments in the local area and the planning policy of the prevailing council.

Demand and supply will also, importantly, affect the negotiating strengths of the two parties to a transaction. The seller and potential buyer of a property will both be aware of the OMV but negotiations between the parties will determine the final selling price or rental level. Where demand is high and a number of buyers or tenants are interested in a property, the seller or landlord will be in a strong bargaining position. Additionally, the seller or landlord may try to secure a price or rent above prevailing market levels as buyers or tenants may be desperate to secure the property ahead of competition. Negotiations will take place around OMV levels but whether the final price or rental level is above or below OMV depends upon bargaining strengths. In a buyers market, a seller or landlord may be so desperate to secure a buyer or tenant they may be willing to accept a price or rent below OMV and indeed many landlords in poor market conditions offer incentives to attract tenants which reduce effective rents below open market levels. So demand and supply levels influence negotiating strengths which will in turn determine the final selling price or rental value and whether the selling price or rental value reflects the market equilibrium level. OMV can therefore only be an estimate as it attempts to take into account unquantifiable factors such as general bargaining strengths.

Property values can be described as a function of national and local economic conditions which influence general demand and supply levels and define the absolute value of the property. Location and the physical and legal features of the property determine the

relative property value, that is influence the value of each individual property. The more favourable the features of a property the higher the demand and therefore the higher the rental and capital values. Demand and supply will also affect negotiating strengths which will determine the final price or rental level. When estimating property value, a valuer must examine all the factors explained above that influence property value and the following sections describe how the valuer attempts to do this.

2.4 Bases of valuations

When discussing valuations it is extremely important to distinguish between the concepts of market value, market price, individual and market worth. Market price is the actual recorded consideration paid by a buyer to acquire a property (Baum et al 1996). This is distinguishable from market value by the fact that a market valuation is actually an attempt to predict this price. The definition of market value instructs the valuer to estimate the most likely selling price of a property in the open market, that is open market value, and this should mirror the eventual market price. The date at which the estimation of the market value is valid depends upon the base to which the valuer is valuing.

The monetary worth of a property is its underlying investment value and is an estimate of the maximum bid price of an individual for an investment taking into account all available information. Its actual level is dependent upon the investment return requirements of an individual or organisation and therefore the worth of a property varies from individual to individual. Market worth is the price at which an investment would trade on the open market if all available information were efficiently taken into account, which is market equilibrium. (Baum et al 1996) The real property market is inefficient with information provision being particularly poor and so the market cannot, and does not, take into account all available information. This will cause market price, the price at which the investment actually trades, and market worth, the price at which the investment should have traded, to differ. This is one of the main problems of an inefficient market as the market trades at market prices based upon imperfect information and at a level that consequently does not

reflect market equilibrium. Market price and market worth would equate in an efficient market as both would take into account all available information. Market value estimated by the valuer may differ from market price due to valuer error or changes in circumstances between the valuation date and transaction date.

Three different figures are possible from a capital sale or rental transaction. First, the market value estimated by the valuer. Second, the market worth of the investment which is its equilibrium price but is virtually impossible to determine because of the lack of information. Finally, the actual realised market price. In an ideal world all figures would be identical. Valuation is concerned mainly with estimating market value, the most likely selling price, in order to negotiate a final market price. Valuations are also produced to estimate the individual worth of an investment in order to make comparisons with the market value to identify market mispricing and possible opportunities to maximise investment returns.

Section 2.2 identified that valuations have several different applications so it follows that there must be several different definitions or bases to which valuations are produced. In the majority of cases valuations are required solely for the estimation of the market price of a property. Market value is defined by the International Valuation Standards Committee (IVSC) as:

> *"The estimated amount for which an asset should exchange at the date of valuation between a willing buyer and a willing seller in an arms length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion." (RICS 1996)*

It is the best price reasonably obtainable by the seller and most advantageous price obtainable by the buyer, although the exact definitions of each individual term are not well explained. This definition of market value settled by the IVSC is considered to produce the same valuation figure as the Open Market Value base which is the definition commonly used to estimate market price within the UK's valuation profession.

Basically OMV identifies what the property would realise on the open market if it were sold today and based upon a series of assumptions regarding the marketing of the property and the nature of the property market. These assumptions for valuing to OMV are laid down by the RICS in its 1996 Red Book of valuation guidance (RICS 1996). The formal definition of OMV is set out below.

> *"An opinion of the best price at which the sale of an interest in property would have been completed unconditionally for cash consideration on the date of valuation assuming*
> *a) a willing seller,*
> *b) that, prior to the date of valuation, there had been a reasonable period (having regard to the nature of the property and the state of the market) for the proper marketing of the interest, for the agreement of the price and terms for the completion of the sale,*
> *c) that the state of the market, levels of values and other circumstances were, on any earlier assumed date of exchange of contracts, the same as on the date of valuation,*
> *d) that no account is taken of any additional bid by a prospective purchaser with a special interest and,*
> *e) that both parties to the transaction had acted knowledgeably, prudently and without compulsion.* (RICS 1996, VAS 4.2)

OMV is an attempt to predict the market price of a property but there are many reasons why the valuation figure may differ from the actual realised sales price of the property. The assumptions underlying OMV define the valuation as a prediction of what the property would sell for today if it were previously marketed. However, if you wished to estimate the market value of a property it is very rare that a property could be sold immediately and may take several months to sell. Conditions may change in this intervening period between the valuation and the actual sale. An OMV may estimate the price of the property at £100,000 but if the property is put on the market and the market is falling it may take 6 months to sell and the price may have dropped to £95,000 causing a divergence in the two figures. An OMV can therefore be a misleading figure if it is taken to regard what price would actually be received for the property when it is sold, it is in fact the most likely selling price if it were sold today after prior marketing. The property crash of the early 1990's illustrates this

point. During this period OMVs produced were predicting what the property would sell for at the valuation date but then the property market slumped and prices fell. Banks who had lent on the basis of OMV found that when they tried to sell the property a few months later, because of the market fall, OMV bore no resemblance to the realised price and the price in many cases did not cover the outstanding loan. OMV is essentially backward looking and takes no account of future property and market performance. The banks have therefore become dissatisfied with OMVs after suffering such losses and, in many cases, have blamed the valuers who produced these valuations hence the quantity of litigation surrounding valuations produced in the early and middle 1990's. Banks required a valuation base that would provide information regarding the price they could expect to realise for a property if they had to place the property on the market today to recover loan capital. In other words banks required more detailed and forward projecting information on which to base lending decisions.

Estimated realisation Price (ERP) was the joint response of the property profession and banking sector to try and alleviate the problem discussed above. The definition of ERP is

> *"An opinion as to the amount of cash consideration before deduction of costs of sale* which the valuer considers, on the date of valuation, *can reasonably be expected to be obtained on future completion of an unconditional sale of the interest in the subject property assuming,*
> *a) a willing seller,*
> b) that completion will take place on a future date specified by the *valuer to allow a reasonable period for proper marketing (having regard to the nature of the property and state of the market),*
> *c) that no account is taken of any additional bid by a prospective purchaser with a special interest,*
> *d) that both parties to the transaction will act knowledgeably, prudently and without compulsion.* (RICS 1996, VAS 4.6)

ERP attempts to predict the selling price of a property if it were placed on the market today and not if it were actually sold today as is the case with OMV. The length of the marketing period depends upon the characteristics of the property and also those of the prevailing market. ERP is a forward looking valuation when compared to OMV and requires the

valuer to predict the market price of the property in X months time, X depending upon the requirements of the client. Some in the profession are worried that ERP is a forecast and that forecasting is beyond the ability of many valuers. Others argue it is simply an OMV produced as normal and then the valuer estimates how long it will take to sell the property based on similar experiences of comparable properties. Then, taking into account indicators of future market performance over this marketing period, adjustments are made to the OMV figure. It hardly requires the complicated skill of economic forecasting.

2.4.1 Data definitions

The production of a valuation figure is defined in part by the bases described above. These bases control the way in which valuations are produced in terms of the mechanics of the process. However, while these definitions are clear this is not the case when it comes to defining the data items that contribute to the overall value of the property. The exception is the RICS Code of measurement practice: A guide for Surveyors and Valuers (RICS/ISVA 1993). This code of practice lays out specific rules on measuring property and what measurement bases are appropriate in the measurement and recording of the sizes of certain property types such as Net Internal Area for Office property and Gross Internal Area for industrial property. Surveyors are taught to use and adhere to these standards early in their career so uniform measurement techniques should be applied throughout the profession.

The code of measurement practice was first published in 1979 and is now in its fourth edition. It has become increasingly important since the introduction of the Property Misdescriptions Act 1991 and the Property Misdescriptions (Specified Matters) Order 1992. These acts placed statutory obligations on the Estate Agent and Property Developer in relation to the provision of accurate property measurement. Although these acts only cover the estate agency and property development businesses the working party set up to devise this code of practice, which consisted of members of the RICS and ISVA, does "*not consider there to be a conflict between the statutory obligations to users and contractual responsibilities to clients.*" (RICS/ISVA 1993, p1)

The purpose of the code is clearly stated in its introduction and is:

> *"... to provide succinct, precise definitions to permit the accurate measurement of buildings and land, the calculation of the sizes (areas and volumes) and the description or specification of land and buildings for valuation, conveyancing, planning, taxation, sale, letting or acquisition purposes on a common and consistent basis."* (RICS/ISVA 1993, p1)

The important phrase is the "on a common and consistent basis". The overriding purpose of the code is to ensure accuracy by ensuring consistency based on a common standard. Unfortunately this ideal for the valuation profession stands alone.

The code begins by stating the three basic measurement bases, Gross External Area (GEA), Gross Internal Area (GIA) and Net Internal Area (NIA). It then goes on to explain each base in detail, how to measure to the base and in what circumstances it should be used. Net Internal Area is the base used to value office property and this is stated clearly in the application section of the NIA definition. The actual standards are very simple and consist of a list of areas to include such as entrance halls and atria with clear height above, and what to exclude such as toilets, stairwells and corridors. An example is then provided showing how to measure specific areas and how areas are excluded. The standards should lead to measuring consistency but there main failing is the language used which could lead to confusion. Examples include the phrases such as "and the like" and words such as "unusable" left undefined within the context in which they are used. However, the standards do satisfy their aim of providing a common and consistent basis and in that sense are a significant step in the correct direction.

However, when it comes to other data items vital for a property valuation there are no specific regulatory data standards within the profession. This not only influences the valuation of a property but also the recording of property transaction details once the deal is

complete (see section 8.2.1). For example there is no explicit identification of what data items should be taken into account during a valuation. During the comparison method of valuation the valuer will gather data on comparable properties and then derive data on certain items which are then applied to the subject property to produce the valuation figure. The main problem is that it is dependent on the individual valuer as to which specific data items are taken into account when analysing the comparables and applying this analysis to the subject property. For example, one valuer may believe that the upward only rent review clause has an influence on the full market rent of the property whereas another valuer may not. If both valuers had identical data-sets this difference of opinion would lead to different final valuation figures. The situation is further compounded by subjective views on how an individual data item will actually influence the final valuation figure. For example two valuers may agree that the presence of a lift will add value to a property but they may have widely differing views on how much that item would influence the final figure. It is very difficult to identify the specific influence of an individual factor from comparable evidence unless sufficient quantities exist which enable a valuer to isolate the factor, and this will rarely be the case. These variations in opinion will inevitably lead to valuation variance.

Without specific data definitions variations will always occur. It is therefore necessary to incorporate into valuation a specific set of data definitions similar in nature to the RICS code of measurement practice. Each individual data item which has an influence on the value of a property must be identified and specifically defined so all valuers take into account the same factors when producing a valuation and all valuers would allocate similar values to identical scenario's. Valuers could then be certain of which data items they must take into account and what actually constitutes that data item. In certain circumstances it may be appropriate to identify a scale which will aid the valuer in assigning a value to a specific item.

It is up to a regulatory body, the RICS in this case, to develop a book similar to the "Red book" (RICS 1996) which controls base definitions, that will set out in all possible scenario's what data items must be taken into account during a valuation and exactly what is

meant by each data item. This will reduce confusion and improve uniformity both in approach and final valuation figure. The software developed during this thesis and described in chapter 8 adopts this approach by laying out all data items that must be taken into account during an office property valuation and also provided explicit definitions for each item (se section 8.1.2 for more details). The issue concerning data definition has received little or no coverage or debate within valuation literature but is one of crucial importance as without such definitions uniformity of approach within the valuation process will never be achievable.

2.5 The production of an Open market Valuation.

There a several basic valuation methods used in the production of an open market valuation. These are:

- Comparison method,
- Investment method,
- Profits method,
- Residual method,

The most commonly used methods are the comparison and investment methods with the Discounted Cash Flow (DCF) technique within the investment method gaining credibility due to its flexibility and rationality. The other methods are used for specialist properties or specialist valuation bases and are used where the valuer's raw material, comparable evidence, is scarce.

2.5.1 The comparison technique of valuation.

The identification of the comparison technique of valuation was attributed to the economist Alfred Marshall in the late 19th Century. For OMV and many other valuation bases this is the most common method of estimating market price and revolves around comparing the subject property with other similar properties for which transactions or lettings have recently

taken place. These similar properties are known as comparable as their characteristics, both physical and legal, are supposed to be comparable to those of the subject property.

> *"A good comparable property is considered to be one which sold recently in the same location, sold in an arms length transaction, has the same physical attributes such as age, accommodation and condition to the subject property.* (Adair and McGreal 1987, p42)

The comparison method requires a valuer to search for properties that sold recently in the open market which allow close comparisons with the subject property. Differences between the subject property and the comparable property are reconciled and the price of the comparable property adjusted accordingly. For example two comparable properties exist that are identical in all respects to the subject property, even the location is comparable, except comparable A has one more floor and comparable B one less floor. Comparable A is sold for £100,000 and comparable B for £80,000. From the two comparables it can be deduced that the presence of an extra floor adds £10,000 to the realised price of a property. The subject property, comparable in every way would logically have an estimated OMV of £90,000.

The simple illustration above describes the nature of the comparable valuation method. Of course, in practice, valuation is never as simple due to the heterogeneity of property. Locating an identical property is impossible because, at the very least, all properties differ in terms of specific location and, in addition, the frequency of sales is low so finding a similar property in a comparable location is extremely unlikely.

The investment method of valuation requires inputs into a basic mathematical model. These inputs are derived using the comparable method of valuation. A property may be subject to several leasehold interests, all at different stages of their duration, and in order to estimate the market price of the property a valuation must take into account the affect these leases have on the market price of the property and how the income flows from the rent paid in respect of the interest contribute to the market price of the property. To undertake such a

valuation the valuer must estimate the open market rental value of the property and in the most basic of cases this rental value is capitalised using a suitable yield. In such a valuation the open market rental level is estimated via the comparison method of valuation. The physical and legal interests of the leasehold are compared to comparable leasehold interests recently let on the open market to full rental value. The yield figure used to capitalise the rental value is also derived from comparable evidence by comparing the full rental value of a property to its realised capital price. Traditional investment valuation techniques rely heavily on the comparison method to provide the inputs into the model. Without comparable properties there would be no inputs and no valuation figures.

Criticisms of traditional valuation techniques have not surrounded the use of comparisons to provide the inputs to the model but actually the rationality of the model itself and particularly the use of yield figures. Implying rental growth within the yield figure at a constant rate throughout the investment period disregards the realities of the real property market and simplifies its operation to too great an extent (For a full discussion see Baum and Crosby 1996).

In an attempt to improve and make more rational valuation methodology, more explicit techniques have been introduced. Explicit techniques specifically refer to the use of DCF techniques adapted from accountancy and which treat growth rates and the use of yield figures with far more care and realism. Again the inputs into the DCF model are derived from comparable evidence including yields and growth rates and also the initial estimation of full rental value from comparable leasehold interests.

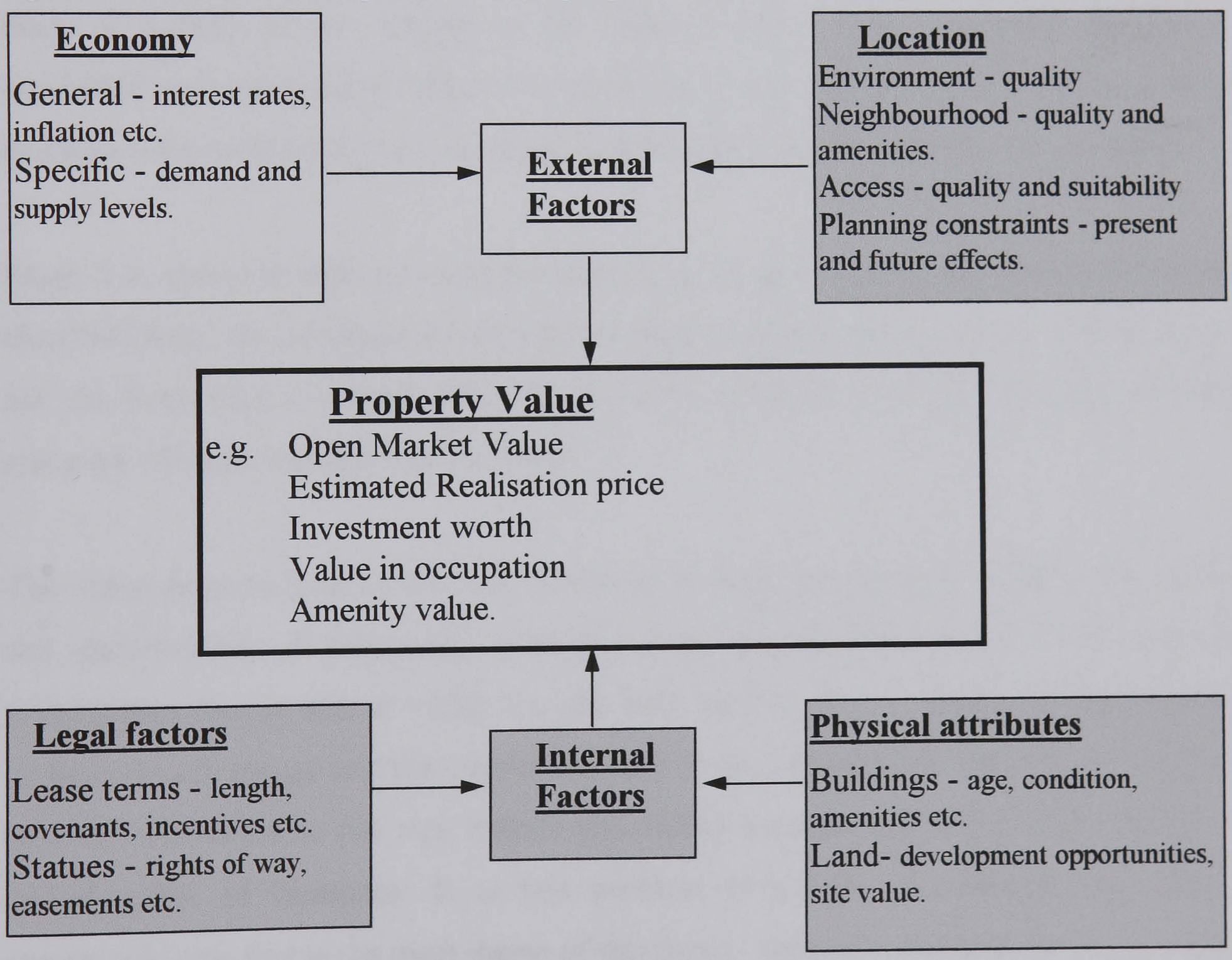
It is patently clear that the use of comparable evidence is central to the workings of valuation methodology. The widely adopted techniques, including DCF methods, all rely upon comparable evidence and indeed the use of techniques reliant on comparable evidence are heavily favoured by the courts in comparison to alternative methods.

> *"[There is] no doubt that comparable transactions must remain the core of the valuer's evidence. They must provide him with hard facts about*

> *the views of others which are independent of his own views. The Courts and Lands Tribunal have made clear their preference for such evidence over alternative calculations....”* (RICS 1994)

However, comparables are not the only source of evidence required by the valuer when producing a valuation. Evidence on general information such as economic performance in both the local, national and international markets, planning permissions and restrictions, floor and boundary plans, socio-economic data and locational factors such as the changing nature of the locality will all influence supply and demand and therefore market price. All these factors must be taken into account when applying comparable evidence. Figure 2.1 shows diagramatically what information needs to be taken into account in the production of the valuation and which constituents of this information are derived from comparable evidence.

Figure 2.1 Information requirements for property valuation. (Adapted from Wyatt 1995)



2.5.2 The three stage valuation process

The Appraisal Institute (Appraisal Institute 1992) defines the valuation process as a whole as:

> *"a systematic procedure employed to provide the answer to a clients question about real property value."*

The valuation process using comparable evidence can be defined as a three stage process. Each stage is dependent upon the quality of the previous stage.

Stage 1 involves the inspection of the property. This allows the identification and collection of the comparable evidence relevant to the subject property and also any other information that may influence demand, supply and market price.

Stage 2 consists of the analysis of the collected data. The comparable data must be assembled and values attributed to the various property characteristics. Analysis of other market evidence must identify any strong market trends or possible future occurrences.

Stage 3 is where the analysis is applied directly to the subject property. The value influences identified from the comparables are applied to those characteristics of the subject property and the final value is altered with respect to the affect of any other relevant information gathered. A valuation figure is the result.

This three stage process is currently flawed in all important aspects. Firstly; the collection and identification of comparable evidence is at best difficult and at worst impossible. Comparable data is scarce within the property market due to reasons of confidentiality, competitive advantage and the inherent secrecy of the valuation profession. Restricting the flow of information in this way inhibits the market mechanism, leads to inefficiency and a mis-allocation of resources. It is this problem of a lack of available and accessible comparable data that is the main theme of this thesis. Secondly; the analysis of the collected

data is extremely variable, interpretation will vary from valuer to valuer and any analysis is dependent on skill, experience and knowledge. Thirdly; the traditional methods and techniques used to manipulate the resulting analysis into a valuation figure have been heavily criticised for being irrational and illogical (Baum and Crosby 1995). Reliable valuations cannot be expected if the techniques by which they are produced are inherently flawed. However, before stages 2 and 3 can be improved stage 1, the identification and collection of the comparable evidence, must be made more effective and efficient in order to provide sufficient data with which to improve analysis and valuation techniques.

2.5.3 Advantages of using comparable evidence.

> "Valuations *based on comparable techniques are relatively easy when comparables are similar"* (Crosby 1991)

This is a major advantage of using valuation techniques that rely on comparable evidence. Adjusting the realised sales price or full rental value of a property to reflect differences between that property and the subject property is a relatively simple task with good quality data. The closer the characteristics of the comparable property to those of the subject property then the easier the task. Skill and experience play a vital role in the ability of the valuer to successfully extrapolate value characteristics from comparable properties and reassemble them into a value profile of the subject property allowing the estimation of its price or rental value.

Other professions, notably the stock market, rely on comparison methods of valuation when valuing goods. Indeed it is from other professions that most valuation techniques were adopted and developed. The difference between valuing using comparables in the share market and comparables to value property is that shares are homogeneous so the price of one share is directly comparable to the price of an identical share whereas heterogeneous property requires the manipulation of comparable evidence in order to account for

differences in characteristics. This heterogeneity is central to the problems inherent within the valuation process.

> *"The property valuer's life would be far less complex if the same level of knowledge was available as in the stock market."(*Reid 1985, p19)

Nothing will change the fact that all properties are different and valuation cannot be as accurate as that of valuing shares because of the variance between each property. However, the stock market has another major advantage over the property market and that is the transparency of information. The transaction price of a share is known immediately a transaction takes place so that information can be incorporated into valuations. If a transaction price is made publicly available to the property market, which itself is rarely the case, the details of the transaction are often incomplete making it very difficult to use the information for comparable purposes as it is not known if the transaction was one that adhered to the definition of OMV and is directly applicable. This lack of knowledge within the market and the lack of knowledge relating to supply and demand levels makes property valuation even more complex than it would otherwise be if full details of all transactions were released into the market domain.

Another significant and extremely important advantage of the use of comparable evidence is that comparables promote objectivity. Objectivity and subjectivity are two concepts without widely accepted formal and comprehensive definitions which appear regularly in the writings of social science methodology literature. These terms are often used when discussing the use of comparable evidence in valuation and it is important to discuss the nature of two such important terms.

2.5.4 Objectivity and subjectivity in the valuation process

Objectivity is a fundamental feature of scientific enquiry. The term objective is a "well established term of praise and subjective is often a term of disparagement"(Myrdal 1970) and this ideal of objectivity is closely related to that of rationality. (Scheffler 1967) The

obsession associated with objectivity stems from the success of natural science methodology when compared to that of the social sciences. Natural science methodology is dominated by objective enquiry and the results from such methods are rarely challenged due to the rationality and objectivity of the methodology employed. Compare this to the social sciences and the volume of research on similar subjects. One piece of research is rarely universally accepted because of the subjectivity involved in the research methods. Social science seeks to mirror, in so far as it can, the success of the natural sciences by adopting objectivity in its methodology so reducing the levels of contestable subjectivity.

> *"Full objectivity, however, is an ideal toward which we are constantly striving but which we can never reach" (Myrdal 1970)*

Total objectivity is impossible to achieve because of values and opinions inherent in the consciousness of the enquirer. A researcher may enter a piece of research with the ideal of objectivity but he/she will already have a feeling or an idea of possible outcomes or results which will affect the research process. To be totally objective a researcher would have to enter a piece of research with no prior value judgements on the subject but if a researcher is researching a particular subject he/she must have had some contact with the concepts involved so some sort of value judgements will have already occurred. Valuers collect comparable evidence as their objective evidence, their factual data as the price paid is known and may be applied as hard evidence, but before analysing the data it is often the case that the valuer has come to a prior opinion as to the value level of the subject property. Such prior judgements may also, where evidence is abundant, skew data collection with only evidence supporting the valuer's opinion selected. The analysis of the evidence is clouded by the subjective judgement already made by the valuer so the objectivity of the analysis suffers. When there is little or no comparable evidence available, valuers must rely on their own knowledge and experience from past and outdated comparables no longer relevant in the prevailing market conditions to produce a valuation. Of course such an approach would be totally unacceptable in the natural sciences. The natural sciences produce results based on large volumes of objectively produced data resulting from a rigidly approved and applied methodology. Results published based on experience rather than objective experimental

data would be treated with great scepticism. In the same respect that results in natural science would be ignored if not based on sufficient data this should also be the case in the valuation profession where valuations are not based upon up to date, objective comparable evidence. A valuation produced from subjective judgement rather than objective evidence cannot be relied upon with any degree of confidence. After all a question often asked in examinations is "Is valuation an art or a science?" If it were an art it would have no rigid, structured approach and no rational objective base and if it were a science it would be a figure based upon a highly structured, methodologically sound approach based upon objective data. The present scenario falls somewhere between the two although with adequate data provision valuers should strive for the scientific approach.

It is possible to break valuation evidence into three main objectivity levels. The first level may be described as non objective, that is subjective, where the valuer has no comparable evidence available on which to base his/her analysis. The valuer also has no experience in the valuation of similar properties on which to base judgements so judgements are purely speculative and based upon no facts. This is the scenario where valuation inaccuracy is most likely. The second level of objectivity is partial objectivity. This is where relevant comparables are not available to the valuer so he/she has to rely again on past experience. This time the valuer has produced property valuation for similar types of property in recent times so has an idea of prevailing market rental levels or capital prices so is in a position to make an informed subjective judgement. Although no current factual evidence is available, past knowledge and experience inform the subjective judgement so it contains a degree of objectivity. This type of scenario is prone to error however where either experience recall is incorrect or the knowledge possessed by the valuer is not relevant to the subject property, or is out of date and market levels have changed significantly. Another scenario reflecting partial objectivity is where comparables do exist but they are of poor quality by either being out of data, badly recorded or only slightly comparable. In this case the valuer has to extract what evidence he/she can from the comparable but this still leaves the valuer with the task of reconciling the evidence by either adapting the comparables using his/her experience and knowledge or filling in the gaps in the evidence that the comparables do not supply.

The highest level of objectivity may be termed as optimum objectivity where the valuer has an abundance of good quality comparable evidence to choose from. These comparable properties are good comparables in terms of the data they supply, their accuracy, their completeness and their timeliness. Such comparables require only analysis by the valuer in order to produce enough information for an accurate property valuation. The valuer has to make no subjective judgements or recall any past comparable knowledge as the facts of recent selling prices or rental levels is readily available. This scenario should result in accurate valuations if analysis is performed correctly and would be the scenario for the majority of office properties if sufficient data were made available.

Valuers may often have already decided upon and come to conclusions about the estimation of the price of the property before a full analysis of available comparable evidence. Pilot interviews undertaken as part of this research identified that many valuers claim valuations are produced mainly through experience gained working in the market place and from this experience knowledge is built concerning prevailing price and rental levels. With this knowledge many valuers already have a valuation figure in mind before examining any recent, relevant comparable evidence and use this comparable evidence to back up their previous judgements. Indeed there is some evidence, especially where information is relatively limited, of a tendency to reject unsupportive evidence in favour of that which confirms the valuer's expectations (Gallimore 1995). Without the appropriate use of comparable evidence the judgements made by valuers using their personal knowledge, even though it is informed through dealings in the market place, are subjective. Subjectivity is dangerous and leads to error. As rental and price levels continually change, as does the nature of the market, it is essential to continually update the valuation knowledge base with objective evidence to produce valuations only from up to date comparable evidence.

Comparable evidence is the vital raw material, the data, used to produce the information disseminated in the form of the valuation figure. As the natural sciences are well aware, information cannot be produced from thin air, it must be based upon data. Unless those data

are objective then the information is of no real value. In the same sense without objective data you cannot hope to produce a reliable valuation figure.

Objectivity in the valuation process is continually referred to as the use of comparable evidence.

> *"Objectivity in the context of market valuation practice usually refers to the use of comparisons." (Crosby 1991)*

> *"In an ideal system...valuers would work from the widest possible base of objective comparable data." (*RICS 1994, p14*)*

Comparisons are objective because they are the hard facts of what actually happened. The importance of objectivity in the valuation process is emphasised by Fraser (Fraser 1984) as is the connection between subjectivity and inaccuracy.

> *"In market valuations the greater the proportion of the figure which derives from objective market evidence and the smaller the proportion from the valuers' own judgement the greater will be the accuracy of the valuation."* (Fraser 1984, p492)

A valuation based totally on objective comparable evidence should limit the scope for error if the valuer analyses the available information correctly. However, where a valuation is based partly on objective data but the gaps where objective data does not exist are filled by subjective judgements then there is room for error because there is a large possibility that the subjective judgements are wrong and hence the final valuation figure is misleading. Therefore the greater the level of subjective judgement within a valuation the greater the possibility of error. In the valuation process it is essential to minimise this subjective element.

> *"To obtain complete objectivity requires a perfect comparison, but there are a number of factors that make the perfect comparison impossible to find. The obvious factor is location, but physical differences also occur. In the valuation of investment properties other important factors also*

> *include the structure of lease.... As soon as any of these factors cause differences between the comparisons and the subject property then subjectivity is introduced. As the number of different factors increases, objectivity is more difficult to achieve."* (Crosby 1985, p19)

Subjectivity is therefore inevitable but the collection and analysis of as many comparable properties as possible reduces subjectivity to as small a proportion of the final valuation figure as possible.

The defence of the traditional but irrational (Crosby et al 1996) valuation techniques employed in the profession stems from the fact that the inputs into the various models are objective.

> *"Objectivity in the use of comparable evidence is a major criterion. Defence of conventional techniques relies on the fact of objectivity."* (Baum and Crosby 1988, p154)

Subjective judgements can cause incorrect implications on the part of the valuer leading to inaccurate valuations and ultimately litigation. The greater the number of available comparables then the greater the likelihood that high quality comparables can be found leading to the reduction of subjective judgement. Increasing the flow of information by removing the barriers to the release of comparable evidence would increase the availability and accessibility of such evidence.

The ultimate valuation technique would be one that required absolutely no subjective inputs and was entirely objective. Such a technique would simply require the characteristics of the property to be valued to be input into a computer model and a valuation figure automatically produced. This is the goal towards which statistical valuation techniques strive. A fuller discussion of such techniques appears in chapter 9 but for now Adair and McGreal (1987) sum up the advantages of such techniques in terms of:

> *"...objectivity, uniformity of approach, speed and cost savings."* (Adair and McGreal 1987, p59)

As objectivity promotes accuracy then a completely objective valuation technique is highly desirable for clients therefore a necessity for the profession.

2.5.5 Data availability, subjectivity and comparable evidence.

Where transactions occur in an efficient market the resulting price information is available to all market players to inform decision making. As previously discussed, stage 1 of the valuation process involves the collection of comparable evidence. If all transactions that occurred in the real property market were available for use by valuers then there would be a substantial base for the valuer to collect objective valuation evidence. Surveying firms are involved in the majority of property transactions and are therefore aware, on the completion of the transaction, of the transaction details including the price or rental value and the factors creating this price or rental level. This evidence is then available for use as valuation evidence should a comparable property become the subject of a valuation. In a market where information flowed freely all valuers, not just those within the firm involved in the transaction, would have detailed knowledge of the transaction details. In the informal real property market the flow of valuation evidence is restricted. Transaction evidence is not released so the comparable is removed from the objective base of valuers. Removing this vital piece of objective evidence increases the scope and requirements for subjective judgements and hence the possibility of error.

There are several reasons why valuation evidence is not released into the information base of the market and these are described briefly below and in more detail in chapter 5.

- Confidentiality - clients wish the details of their transactions to remain confidential so prohibit surveying firms from releasing the data.

- Competitive advantage - many surveying firms have built up databases of valuation evidence and try to secure business on the basis of the premise that "we have the information, our competitors do not, therefore, we can provide a superior service".
- Conservatism - the property market has always been reluctant to accept new ideas and innovations and releasing privately held data is no different.
- Technical requirements - standards would be required to define who owns the data and who is responsible for its accuracy?

These and other barriers to the release of valuation evidence prevent the construction of a substantial objective valuation database. Valuers have to rely on the limited relevant information they can obtain from in-house data sources and secondary evidence media and fill in the gaps with their own judgement.

> *"The exercise of market valuations is complicated by two factors - the absence of a central register of sales and the confidentiality of information. These factors mean that most valuers, when asked to value any property have to base their assessment on a bare minimum of market comparisons and only limited information on the volume of money in the property market and the absolute* volume *of alternative property investment opportunities" (*Reid 1985, 19)

Accurate valuations require a substantial objective information base from which to extrapolate. Crosby (1991) believes that in order to undertake objective market valuations the valuer needs to have the same information base as everybody else and not be reliant on limited in-house evidence. Valuers must then use this evidence in the same way to ultimately be consistent. The quantity and, to a certain extent the quality, of obtainable objective evidence depends first on the volume of transactions in the market, second on the number of transactions with which the valuer's own firm was involved and finally on the way in which the transaction details were recorded for future use. When all these factors are against the valuer, analysis is severely affected.

> *" A moribund market exacerbates the problem of assembling market evidence. Little transaction based information will be available, while*

> *that which is may be largely anecdotal. Comparisons of deals is likely to be complicated by incentive packages and the parties may be sensitive to the disclosure of the terms of the agreement. It is perhaps inevitable, therefore, that property valuations and management decisions made using only a small quantity of often unsubstantiated data can be unreliable, especially in a volatile market....*" (Smith and Wyatt 1996, p5)

Within litigation cases concerning valuation accuracy the availability of good quality data has been a major topic of discussion. Phillips J. in the judgement from *Banque Bruxelles Lambert SA V Eagle Star Insurance Co. Ltd* [1994] 1EGLR 175 *said*

> *"The reliability of this estimate* [the valuation figure] *depends on the quality of the data available and, in particular, on whether the valuer has accurate information of recent rentals agreed for premises that are truly comparable."*

It is widely recognised that restricting the flow of information is leading to problems within the valuation profession. The Mallinson Committee was established by the RICS in 1994 in response to growing criticism of the commercial valuation process. The committee, headed by Michael Mallinson, consisted of leading figures from both academia and practice. The committee made 27 firm recommendations within its report which itself has been widely welcomed by the profession and its clients. The very first of these recommendations concerned data availability.

> *"We* recommend *that:*
>
> *i) The RICS takes all possible steps to encourage the wider availability of data necessary for the performance of valuations."* (RICS 1994)

The recommendation was supported by several comments in various sections of the report concerning data availability and access.

> *"The profession has a history of protecting information in the interest of the competitive edge....*opposite *of what is needed by a professional valuation service."* (RICS 1994)

> *"People in other markets are surprised by the jealousy with which surveyors guard transaction knowledge and it may be that, in a prefect world, surveyors will be striving to make the market more* transparent.*"*
> (RICS 1994)

In a perfect property market there would be complete transparency of information, all transactions would be available for close scrutiny, within an on-line database, and in sufficient detail for that transaction to be ideal as a source of comparable evidence. All transactions would be recorded to set standards ensuring the uniformity of information and surveyors would take the utmost care to ensure the accuracy of these data. This is in stark contrast to today's scenario with secretive transactions and where transactions are recorded very little care is taken to ensure accuracy so severe problems exist within in-house databases due to the lack of recording standards operating within the profession (See chapter 4).

When compared to more formal markets the property market appears extremely inefficient. Transaction price is instantly available in the Stock Market and is available for use by traders in their decision making process. This is clearly not the case in the property market and the decision making process of property professionals is hampered by this lack of instant data, information and subsequently knowledge. Even when compared to property markets in other countries the provision of information in England is poor (Wyatt 1996 see chapter 3). By restricting information the property profession is making the valuation process far more complex and error prone. Clients are therefore wary of the service they are receiving from valuers. If the profession is not careful clients might look for alternative sources of property advice from accountants or lawyers for example. If this is the case valuers will have to fight for business and the only ways to do this are to improve the quality of advice, make advice less expensive or both. Without an increase in available information improving the valuation profession other professions will force it into a reaction and by then it may be too late. As the Mallinson report comments:

> *"The profession which regulates valuers must encourage a wider availability of data. External sources will drive this unless the process is managed in the interests of delivering high quality valuation service."* (RICS 1994)

To sum up, the objective information base valuers must utilise in order to produce accurate and reliable valuations must be increased in order to reduce subjectivity and the accompanying scope for error. To achieve this the profession must release currently secret valuation evidence so it is available to all valuers to use. Mallinson clearly sets out this argument:

> *"Most judgements are built from data. At present the availability of data is patchy in the extreme. Practice and attitudes* have *improved in recent years but there is still evidence of the jealous guarding of market information, not to mention the emergence of confidentiality agreements.... in the interests of the profession and the generality of its clients, in the area of valuation, information should flow freely. Such freedom can only increase the quality and reliability of valuations, a common aim of Institution and members. We urge the RICS to take every opportunity to encourage the availability of data, to advise its members to co-operate in the production of databases and data series...."*(RICS 1994)

The most effective method of increasing data availability would be the construction of a national database containing comprehensive details of transaction evidence. This database would be contributed to by and accessible to all PPSP. Such a database would help the profession take a major step forward towards increasing the quality of the valuation process.

> *"Databases must be built to which all contribute and all have access. This will call for recognition that in a modern knowledge-based industry you are not differentiated by what you know but how you use it. Valuers already co-operate at the micro level, but this must be built upon and formalised. Only the professional bodies can generate the necessary drive and direction." (RICS 1994)*

Valuers do indeed co-operate at the micro level through the exchange of information via the "data grapevine" or "jungle telegraph" to name but two terms for the informal network

based around telephone conversations or face to face contact. This indicates that valuers cannot rely solely on their own internal evidence and require external evidence as a supplement. This highlights the need for a national database and this thesis advocates the construction of a National Valuation Evidence Database (NVED) and sets in place the framework and standards for such a system.

2.6 Valuation accuracy.

Valuers are expected to produce accurate and reliable valuations for the purpose of informing the decision making process of their clients. If valuations are not accurate then clients will base their decisions on incorrect information, the economic consequences of which would be a mis-allocation of resources and for the client a possible capital loss or inadequate return from their investment outlay. Poor valuation may lead to the placement of over or under-priced properties onto the property market.

In the inefficient real property market accurate valuations are essential in minimising this inefficiency and, essentially, not adding to it further. Accurate valuations minimise inefficiency by:

- guiding the market towards negotiating a price that reflects the market worth of the property,
- facilitating the maximisation of investment returns by allowing informed and efficient decision making,
- promoting the efficient allocation of resources by preventing investment in over priced property,
- allowing comparisons of investment performance between property and other assets in order to aid resource allocation,
- guiding banks in their lending decisions as 70% of all bank lending is secured on property assets (McWilliams 1992) and accurate valuations lead to well informed lending decisions.

There are advantages to inaccurate valuations, the most obvious is allowing perceptive investors to purchase an undervalued investment property so securing abnormal investment returns, but these are heavily outweighed by the disadvantages.

It is essential that valuations are accurate but what exactly is the definition of an accurate valuation and how it is possible to prove that a valuation is accurate or not? There is no definitive answer to either question but the concepts are discussed in detail below.

2.6.1 When is a valuation regarded as accurate?

Market valuations attempt to predict the most likely selling price of a property. For an Open Market Valuation the figure predicts the likely selling price of the property if the sale were completed on the valuation date and marketing has already taken place. It is extremely unlikely that any property will sell immediately it is placed on the market and the OMV figure, and the realised transaction price, will differ due to fluctuations in the market place during the marketing period or the existence of a special purchaser. OMV and the final transaction price will therefore rarely be identical. For the OMV figure to be considered 100% accurate the difference between the two figures should be due entirely to changes in the property market between the valuation date and completion date. It should be possible to quantify this fluctuation and adjust the OMV figure accordingly to allow meaningful comparisons.

Estimated Realisation Price appears to be more straightforward. This valuation base takes into account the marketing period so if the property was placed on the market on the valuation date then the transaction price should be identical to the valuation figure unless there were extenuating circumstances such as a special purchaser. The accuracy of the valuation can therefore be ascertained by comparing the figure with the transaction price in either case after making the necessary adjustments. It is often the case, however, that the transaction price is not made available so comparisons are not possible to check accuracy. Without additional transaction details it is not known if the transaction adhered to the

definition to which the valuation was produced. For example, a special purchaser may pay a price far in excess of the market worth and so the valuation will differ greatly but in no way has the valuer been negligent. As mentioned there are problems in comparing valuations and price although several studies have been undertaken to do just that. (For example IPD/Drivers Jonas 1988/90, Blundell and Ward 1997)

The second problem concerning valuation accuracy measurement surrounds the principle of valuation as an estimate based upon a series of assumptions. It is unlikely that the valuation and transaction price will be identical when the property concerned may transact for several millions of pounds and the negotiating strengths of the transaction parties may influence the final figure with the size of the influence impossible to accurately estimate. Accuracy is usually discussed in terms of a percentage deviation from the transaction price or what is more commonly termed the "true market value" at the valuation date.

According to Mackmin (Mackmin 1985) professional valuers claim to be able to value to within 5% of the true Open Market Value (market worth) of any property. Of course the true OMV cannot be known due to the imperfect nature of the market so this claim is fairly safe as is often impossible to disprove. As part of a survey conducted during this research (see chapters 3 and 4) valuers were asked what they perceived as an accurate valuation. 99% of respondents believed an accurate OMV was a figure that predicted the realised sales price of the property to within +/- 10%, 35% of which believed the margin of error should be +/- 5%. These figures refer solely to the OMV of office property but recent studies (Blundell and Ward 1997, Hutchison et al 1996 and Brown, Matysiak and Shepherd 1996) suggest that valuers cannot value to within 5% or even 10% of the market value. Indeed the results of the study showed mean variances of around 10% or higher from sales price or the valuations of other valuers.

> *"Variations in excess of 10% must be viewed with some caution as this may prompt legal action from dissatisfied clients."* (Hutchison et al 1996, p16)

The Courts, when dealing with litigation against allegedly negligent valuers, have adopted specific percentages as the criteria for determining whether valuations are accurate or not. Valuations falling outside the percentage "margin of error" are considered negligent and damages payable. The criteria adopted by courts in deciding whether a valuation is negligent have come from case law and three cases in particular. In *Singer and Friedlander Ltd. V John D. Wood and Co.* (1977) 243 EG 212, in his judgement Mr Justice Watkins said:

> *"The permissible margin of error is said... to be generally 10% either side of a figure which can be said to be the right figure... which at the time of valuation is the figure which a competent, careful and* experienced *valuer arrives at after making all the necessary inquiries and paying proper regard to the state of the market."*

This brings to light the important concept of the competence, care and experience of the valuer and that such valuers are deemed to produce correct valuation figures. Instead of relying on the realised transaction price and adjusting the figure to reflect the valuation date the judgement relies on the valuation a careful and experienced valuer would have produced in the same situation. If a valuers figure lies 10% or more outside the right figure produced by the careful valuer then he/she is deemed negligent. Mr J. Watkins went on to say:

> *"In exceptional circumstances the permissible margin of error... could be extended to about 15% or a little more either way. Any valuation falling outside what I shall call the bracket brings into question the competence of the valuer and the sort of care he gave to the task of valuation."*

This notion of the permissible margin of error was continued in *Corrisand Investments Ltd V Druce and Co.* (1978) 248 EG 315 where the presiding judge stated that an inaccurate valuation was one that differs from the transaction price of the property by up to 15% depending upon the case facts. This is relatively consistent with the previous case but allows slight flexibility depending on the individual circumstances but the valuation still

must not fall outside the 15% range. A more recent case *Mount Banking Corporation V Brian Cooper and Co.* [1992] 2 EGLR 142 extended the margin of error to 17.5%.

These three cases show that judges have set down guidelines as to what constitutes an accurate valuation but the "bracket" has ranged from 10-17.5%. This indicates that there is not one acceptable percentage error and accuracy does indeed depend upon the facts prevailing in each case.

Brown, Matysiak and Shepherd (Brown et al 1996) agree that valuation outside a 10% bracket either side of a "correct valuation" may expose the valuer to negligence claims.

> *"Although valuers may, on average, be able to interpret information in the same way this does not imply that all valuers will have the same view concerning a valuation. There will, therefore, be uncertainty concerning individual valuations. This is generally accepted in the market and has given rise to the widespread belief that valuers should be able to value within a range of 5-10% of the mean value. These figures appear to have been established in an arbitrary manner. Nethertheless the suggestion has been that any valuations which lie outside this range imply that the valuers are being negligent in the way they estimate values."* (Brown et al 1996, p2)

Further cases in the last two years have established the margin of error or "bracket" as the procedure used by the courts in negligence cases. Judges have commented that valuation is an art and not a science (*Zubaida V Hargreaves* [1995] 1 EGLR 127 and *Craneheath Securities Ltd V York Montague Ltd* [1996] 1 EGLR 126*)* so valuation figures produced by competent valuers will differ but should only differ by the accepted margin. Most judges accept the idea of a:

> *"...range of valuations which a competent valuer might reasonably have reached.."* (for example the Court of Appeal in *Nykredit Mortgage Bank plc V Edard Erdman Group Ltd. [1996] 1 EGLR 119)*

Accepting this bracket as the method of determining negligence, as the courts clearly have, implies that any valuation that falls outside this range cannot have been one produced by a competent valuer so the valuer has been negligent. (Crosby et al 1997)

No damages are payable unless the plaintiff has suffered a loss and resulting damages reflect the size of the loss. Recent cases (South Australia Asset Management Corporation V York Montague Ltd [1996] 2 EGLR 93, HL and Zubaida V Hargreaves [1995] 1 EGLR 127) however have made it clear that valuers are not liable for falls in the value of a property due to the state of the market suffered by the plaintiff when they purchased property on the strength of negligent valuations. Valuers are only liable for the amount of the overvaluation, which is the difference between their figure and an accurate valuation figure at that date, and not the full financial loss suffered as a result of the overvaluation.

Negligence should be decided on the basis of common sense and the individual case facts. No single percentage figure is correct for all types of valuation. For example, a valuer valuing a straight forward, fully let office property with an abundance of comparable evidence should not be permitted the same margin of error as a valuer valuing a sewage works.

The margin of error used by a Judge is usually agreed by the two expert witnesses acting for the plaintiff and the defendant. These expert witnesses should be able to, in the eyes of the Judge, produce correct valuations, that is identify the true value of the property. However, and this makes it difficult for the Judge, the two valuations produced by the expert witnesses often show wide variations. Indeed analysis by Crosby and Murdoch (1997) of 32 recent cases shows that average bracket needed to accommodate the valuations of the expert witnesses was 23.22%, way outside the 10% bracket often used to determine negligence. If the expert witnesses cannot agree as to the correct valuation figure that this is a damning reflection on the valuation profession. Crosby et al outline three reasons for this the first two of which they describe as “repugnant”.

> *"First, the divergence's could result from the incompetence on the part of some of the expert witnesses, who are unable to value to the standard imposed by the law upon the defendant and for which many of them will be contending. Second, the divergence's could occur because some of the expert witnesses are fitting their evidence to suit the exigencies of the instructing parties case, producing artificial disparities which did not reflect the experts professional judgement."* (Crosby and Murdoch 1997, p19)

The third reason claims the margin of error concept is "fundamentally flawed" and has "no rational basis". It is true that both the plaintiff and the defendant will employ expert witnesses and instruct these expert witnesses to provide a valuation that reflects the case of the relevant party and there is no doubt that evidence can be collected that, if analysed in an appropriate manner, will support either case. The only solution to rendering the margin of error test more objective is for the courts to employ an independent expert witness to produce a single valuation from all available evidence and call that the correct valuation. If the defendants valuation varies from this correct valuation by more than 10%, or whatever is deemed the correct margin of error, then the defendant is guilty of negligence.

An accurate valuation has no clear definition, however, it should closely reflect the true market value which attempts to predict the sales price and is taken by the courts to be the valuation produced by a careful, competent and experienced valuer. The permissible margin of error, if adopted by Courts when determining valuation accuracy, should depend on individual circumstances. It is the case that valuers believe accurate valuations should fall within 10% of the market value and this is consistent with the courts because half of the recent cases decided using the margin of error basis took the 10% bracket as the negligence criteria (Crosby et al 1997). If valuers accept this criteria and believe they can value in accordance with it then this can be used as the foundation for a tentative definition of valuation accuracy. However, such a definition should be flexible enough to accommodate the valuation of all property types in all market circumstances.

2.6.2 The Valuation accuracy debate.

As previously mentioned there are three main reasons why it is difficult to assess valuation accuracy. Firstly, there is no specific definition of what constitutes an accurate valuation. Secondly, the valuation and transaction price may legitimately differ if the transaction does not reflect the definition to which the valuation was produced. Finally, for reasons of confidentiality, the transaction price is rarely released making comparisons impossible.

Despite these problems and limitations several studies have appeared in property journals over the last 20 years. Such debate tends to coincide with poor market conditions where property investors are trying to recover their capital losses through litigation against valuers. A negligent valuation in a rising market is likely to go unnoticed as no money is lost on the resulting re-sale of the property either from the investors or lenders point of view. Banks have been quick to sue valuers where they are unable to recover loans made on possibly negligent valuations. When a property realises a level below the valuation figure and banks can not recover their capital they look to those who produced the allegedly negligent figure to try and recoup all or a proportion of the loss they would not otherwise have suffered had the valuation been accurate and the correct loan facilitated. The Banque Bruxelles case ([1995] 1 EGLR 129) is a good illustration of this point. A loan was made on the basis of a valuation produced by John D. Wood and Co. which proved to be substantially in excess of the realised sales price of the property obtained when the borrower defaulted on the loan and the property was sold. It was held that where a property has recently been sold, and provided the property was competently and properly exposed to the market, the market price will reflect the market value. This allowed comparison of the price with the valuation figure and the judge was able to deduce that the valuation was negligent and the plaintiffs were entitled to recover the damages which they suffered, but only to the extent of the overvaluation.

Criticism of the valuation process and the resulting accuracy of the valuations really began in the 1970's. This criticism came initially from inside the profession. Wood (1972) and

Greaves (1972) were both critical of valuation methodology believing it theoretically flawed. If the methodology of valuations is flawed in theory then, by definition, if correctly applied in practice it will not produce accurate results. Greenwell and Co (1976) stated in a shareholders review document that the current valuation approach relied too heavily on the existence of an adequate trading volume in direct property in order to provide a base from which valuers could extrapolate and that in a thin market this volume of evidence simply did not exist. The article called for new valuation methods to be adapted and adopted from other professions.

In response to Greenwell and Co. and growing dissatisfaction from valuers clients, the Royal Institution of Chartered Surveyors commissioned a major research project in 1978 designed to investigate and analyse current valuation techniques. An interim report was published in 1980 (Trott 1980) but although the report was comprehensive it did not successfully defend or rebuke the prevailing valuation techniques or silence criticism.

During the 1980's there were a series of cases that surrounded various take-overs and mergers. Valuations of property were necessary to arrive at an overall value of a company or organisation. These cases highlighted large discrepancies between asset valuations produced by different valuation firms. (Crosby and French 1994) Following such cases, and especially a paper published by Hager and Lord (1985), the criticisms were brought to a head when they reached the national press and subsequent public awareness.

In 1985 Hager and Lord (1985) undertook a simple study to examine variation between valuations. The results highlighted a wide variation in valuations produced by valuers for two simple properties. Ten valuers were asked to value two properties, one office and one retail. A control valuation was produced for each property by a valuer considered by the authors to posses extensive valuation experience and knowledge of the property's location. All valuers were given identical instructions and comparable information and their task was to analyse the information and the local market in order to produce two valuation figures. The results for property A, the office property, showed a variation from the control

valuation of between -13 and +7.6% while for property B the variation was even greater, between -26 and +8.3%. These variations were far greater than the authors expected. The results reached the national press with accompanying reports that valuers could not value with accuracy and valuations could no longer be relied upon for performance measurement purposes.

This study by Hager and Lord produced results that were easy to understand and proved extremely bad publicity for the profession. However, the results are easily criticised and should have been treated with some caution at the time. First, the valuers used in the study were not familiar with the area in which the properties were located, unlike the control valuer, so did not possess the experience and knowledge of the local market deemed so critical by valuers. There may have been local market abnormalities that only the control valuer was aware of which would cause the study valuations to differ from the control valuation by a wider than expected margin. Second, those valuers undertaking the valuations were paid no fee for their effort so may not have been as thorough in producing the valuation as they normally might have been. Third, the published paper did not divulge the comparable evidence provided to the valuers so no assessment of the quality and consistency of this information is possible. Finally, ten valuers is a very small sample from which to draw conclusion about the state of the whole valuation profession.

Case studies, in order to be reliable, rely on valuers being given identical information sets and identical instructions as to the researcher's requirements. Variations will always occur because any information set is open to interpretation and different valuers, quite justifiably, will interpret the same information in different ways. However, variations resulting from these interpretations should be within realistic limits given the professional skill of valuers and if variations are extremely wide questions must then arise as to the valuer's judgement or perhaps over the arithmetic or valuation model used. Even after accepting these limitations the Hager and Lord study still provided plenty of ammunition for those wishing to criticise the profession and represented the worrying fact that valuers could not, and certainly still do not, reach similar conclusions from identical information sets.

The valuation profession was quick to respond to the Hager and Lord paper initially in a defensive manner (Reid 1985, Fraser 1985) and then with valuation accuracy studies of its own. Brown (1985) was the first to produce a rigorous, statistical response. Obtaining a sample of 29 properties over a five year period ending in 1980, he used a regression model to compare the realised sales prices of these properties with their valuations produced prior to the transaction. If valuations were perfectly accurate there would have been a perfect correlation between the two variables with the relationship statistically significant at the 1% level. The correlation coefficient obtained from analysis was very close to 1 and the relationship was statistically significant. Further analysis indicated that prices explained about 99% of their equivalent valuations. Brown accepted the limitations of using such a small sample size but felt able to conclude about his analysis that:

> *"...it does add some* credence *to the rationale underlying the open market valuation process."*(Brown 1985, p37)

In addition to comparing valuation and price, Brown also compared the valuations of one firm with those of another on a sample of 26 properties. The results of the regression analysis provided evidence that the valuations of one firm were a good proxy for those of another and there was no systematic bias. Brown's results contradicted those of Hager and Lord although because they were statistically based and not as easy to understand they were nowhere nearly as well reported.

Statistical analysis of valuation accuracy can only be accepted after an examination of its limitations. There are many legitimate reasons why market valuations will not reflect many actual sales prices and so a one to one correlation between price and valuation is actually very unlikely and a perfect correlation may cause some concern as to the validity of the analysis. Such reasons include the definition used to actually value the property where the open market valuation definition may differ from the way in which the property is actually marketed and sold. For example, the open market valuation definition assumes full and open exposure to the market whereas the actual sale may not require this type of marketing. In

addition, there are also reasons why certain valuations will mirror actual sale prices. These include the fact that many valuers are actively involved in the marketing of the property, especially in the smaller firms where the valuers are also the agents. According to Baum and Crosby (1995, p176):

> *"This results in the confluence of the market valuation process and the market pricing mechanism. It is no justification of market valuation accuracy that prices paid are close to valuations when negotiations are carried out by valuers. This invalidates tests of market valuation accuracy and seriously questions beliefs in market efficiency based on an apparently objective comparison of market valuation and prices paid."*

This scenario is often mirrored in the larger firms, and where the valuer is actively involved in sale negotiations it is not surprising that one figure reflects the other. Valuations do indeed provide the basis for negotiations because demand and supply interaction is difficult to identify in such an imperfect and fragmented market. A valuation may be inaccurate but the inaccuracy of such a valuation will rarely come to light unless there is litigation. Certainly in specialist markets with limited comparables if the valuation is based heavily on one recent transaction and the transaction price was based upon an inaccurate valuation then there may be systematic mispricing of a whole sub market of properties. Prices may indeed reflect valuations but where the valuations are not accurate then prices that are fixed with regard to the valuation are pushing the market further away from equilibrium and there is in fact a snowball effect in that portion of the sub market. Whatever the proportion of valuations and prices open to objective analysis there are those that are not and these cases limit the validity of any statistical analysis.

In 1986 Miles (1986) undertook a similar study to that of Hager and Lord beginning the research with the statement that valuation accuracy was proven only by "a lack of evidence to the contrary." The test used a sample of valuers at a conference who were given information on two properties and asked to provide valuations. For the first task, a straightforward valuation, there was a coefficient between those valuations produced and the

control valuation, pre-determined, of 0.9 with a standard deviation of 10%, roughly what the profession itself believes acceptable. For the second, more complicated valuation task, the coefficient between value and the control was only 0.32 indicating a huge discrepancy between the figures. Those who took part in the study were critical of the information provided but Miles concluded that the results of the study showed a lack of confidence in the investment method of valuation when faced with valuing an unusual property. Of course with such a study the same limitations apply to the results as with the Hager and Lord case study and the results must be treated with some caution.

Returning to the theme of statistical tests of valuation accuracy, Investment Property Databank (IPD), an organisation currently involved in analysing large quantities of confidential data collected from property investors and institutions and Drivers Jonas produced a joint study in 1988. (IPD/Drivers Jonas 1988) The study concentrated on 1442 properties within the IPD database sold between January 1982 and March 1988 for which prior valuations were known. Valuations for the properties were carried out, on average 9.7 months before the transaction date. The results, produced using regression analysis, showed that the valuations were closely related to the sales prices with a slight conservative bias. The study supported the work of Brown in defending valuation accuracy. IPD/Drivers Jones updated the work in 1990 (IPD/Drivers Jones 1990) with a further two years of data which reflected a more volatile market. The variation in valuations did not increase during the more volatile period and the conclusions from the previous study were confirmed. The results showed average valuations were 6.1%, 7.3% or 7.5%, depending upon the price range the property was in, away from a perfect 1:1 correlation with prices. These levels are well within the 10% accepted margin of error and are consistent with changes in the market in the 9.7 month average marketing period and differences between the actual sale and valuation base. However, the same limitations to such statistical analysis of valuation accuracy apply as with the study by Brown (1985) and although the results do provide encouragement for valuation methodology used in the profession they cannot be accepted as absolute proof that valuations are accurate.

The results of such statistical analysis and the statistical methodology employed by both Brown and IPD were criticised by Lizieri and Venmore-Rowland (1991). Their paper concluded that the methods used to analyse the data were flawed and the results unreliable due, in the main, to the effect of multicollinearity, the scourge of most regression analysis studies. Brown (1992) defended the methodology and dismissed the arguments and criticisms of Lizieri and Venmore Roland as themselves flawed and irrelevant.

In 1994 IPD again developed and updated their previous valuation accuracy work (Cullen 1994). Using the IPD database there were around 7000 transactions available for analysis which were preceded by valuations four or more months prior to the transaction date. Two statistical methods were used to establish the relationship between the valuation figure and the sales price. Two methods were used to avoid previous criticism of the sole use of regression equations in statistical tests of valuation accuracy (Lizieri and Venmore Roland 1991, Pratten 1992, Matysiak and Wang 1994). A total variance test computed the gap between each valuation and the achieved price and expressed this as a proportion of the price. Frequency distributions were then produced to demonstrate the pattern and spread of valuation estimates. Secondly, a partitioned variance test, this time using linear regression, split the variation between valuation and price into systematic and random components. The results produced by IPD reflected a 13 year period from 1981-1993 so took into account both boom and recession.

The results showed that 23% of all transactions were within +/- 10% of the preceding valuation. 66% of valuations fell within +/- 20% but which still leaves a third of all valuations with a variance of over 20% from the transaction price. Analysis indicated a conservative bias in valuations but, generally, accuracy improved over the thirteen year period. The partitioned variance test showed, on average, that around 5% of the variation between valuation and price was due to a random error, an error that cannot be attributed to a single cause or event, which can only be attributed to mistakes or miscalculations by the valuer. The remaining difference, possibly up to 35%, was due to systematic effects which were the result of the lag between valuation date and the final transaction date. Prices will

change during this period, which for the study was an average length of 9½ months, and evidence was presented which suggested that greater levels of variance correlated with high capital growth rates. This is the main reason why larger variations occurred during boom years with valuations constantly on the conservative side due to the speed of price changes.

If it is accepted that a large proportion of the difference between valuation and price is due to changes in price levels between the valuation and transaction date then this provides strong evidence for the use of Estimated Realisation Price which, by definition, tries to take these changes into account. Systematic error should be reduced and therefore so should total valuation variance and price divergence. However, there is still the average 5% random error factor to consider. This 5% rose to 10% in certain circumstances, an unacceptable level of valuer error.

There is no doubt that the IPD study is comprehensive and extensive and compliments previous accuracy work. However, it is the case that the IPD database consists of properties in institutional portfolios. Any firm chosen by an institution to undertake valuations of their property is likely to have an exemplary reputation and the firm itself will choose their most experienced and highly skilled valuers. Such valuations are likely to be towards the top of the valuer skill range so random errors of 5% are likely to be the lowest expected within the profession. Valuations are also likely to be produced regularly for such properties so detailed substantial comparable databases would be maintained. To take on average the 5% random error figure to be attributable to the whole profession is therefore misleading. It would be interesting to establish a comparable study allowing the comparison of random error using secondary property in secondary locations that are rarely valued and when they are they are valued by smaller firms of lesser reputation, with fewer resources,. Of course such a database does not exist.

Cullen admits:

"In a falling market there may be a tendency for some potential errors to be masked, as sales which threaten to come in well below valuations

are withdrawn from the market so eliminating them from after the event test..."(Cullen 1994, p99)

If such valuations are inaccurate, or rather there is a wide variance, it is difficult to prove as the transaction did not take place. However, discrepancies of this sort cannot be avoided and IPD's study is extremely useful in quantifying the level of variance attributable to changes in market conditions during the period between the valuation date and transaction date.

Matysiak and Wang (1995) undertook a study using a database of 317 sales between 1973 and 1991. These sales were taken from Jones Lang Wooton's performance analysis system. The study found that 56% of properties were undervalued by an average of 21.1% and 42% were overvalued by an average of 11.5%. From this study tentative conclusions were drawn that valuers undervalue in bull and overvalue in bear markets. The probability of valuers valuing to within the common 10% bracket for accuracy was only 30% with that figure rising to 70% for the 20% bracket. These figures show extremely poor level of predictions of the final sale price of a property by valuers but limitations again exist when comparing valuations to sales prices. Brown (1996) also indicated that there is only a 20% chance of a valuer producing a valuation within 10% of the sales price.

A recent survey carried out by Hutchison et al (1996) investigated valuation accuracy by using structured survey techniques to examine the valuations of national and local valuers throughout 14 centres in the UK. 446 valuations were carried out in all and the analysis of the results did

"...not support the contention that valuers can value to within 5% of sales price. Indeed, in this respect, the results are of some concern, particularly as the valuations were controlled: all the subject properties were prime and the physical size, lease terms and covenant strength were given. It would be interesting to consider the degree of variation which would have occurred had the properties chosen been secondary locations, in smaller towns and *with more complicated lease arrangements."* (Hutchison et al 1996, p15)

For valuation of rack rented office property the average deviation of results was 11.09% from the mean. This is just outside the 10% bracket but is still a significant deviation from the mean valuation which is not necessarily the correct valuation. The valuers were provided with a standardised hypothetical property in a real location within their regional market so the poor results cannot be attributed to unfamiliarity of the area or the property type as the hypothetical property was prime property. In this study, increases in valuation variance were attributed to, in part, the quantity of comparable evidence available for use by valuers. This provides further evidence that a lack of objective comparable evidence leads to valuation variance and the wider the variance within a set of valuations then the greater the number of unreliable or possibly negligent valuation figures. This case study has slightly more credibility than previous case studies as the valuers were familiar with the local market and comparable evidence is derived from their own internal and external sources, a more realistic scenario than providing valuers with information. However it is unclear whether valuers were paid for the study and consequently how much care was taken in the collection and analysis of comparable evidence.

Blundell and Ward (1997) also used the JLW performance analysis database to analyse 747 properties over a sixteen year period beginning in 1974, with the same limitations as the Matysiak and Wang 1995 study. They investigated the percentage difference from the sales price to the valuation and found that the sales price was, on average, 7% higher than the valuation. The standard deviation was, however, 18% indicating some extremely large variations. Only 35% of valuations were within the 10% bracket.

In conclusion, there have been several studies which attempted to analyse valuation accuracy, each has its limitations but each provides some interesting analysis. There can be no real conclusions as to whether valuations are accurate or not due to the limitations and contradictions of the accuracy studies but such studies seem to indicate that it is rare that valuers can value to within 10% of the sales price of the property. These studies have produced continuing calls from clients for the profession to improve valuation methodology

and also pressure from within the profession to adopt more objective methodology. This internal pressure is having an effect and professional valuers are beginning to adopt discounted cash flow methodology when producing valuations, particularly in more complex scenario's (French 1996).

Whatever the conclusions concerning valuation accuracy drawn from studies and case law, the acceptance by valuers of 10% as an acceptable error margin is limiting. Valuers should strive to produce accurate and reliable valuations that closely predict the market worth of a property but with valuations produced months prior to the determination of a sales price it is not surprising the two figures vary to such a great extent. However the variation in valuations should not be greater than 10%. Several valuers producing valuations using similar evidence and at the same valuation date should be able to produce robust analysis resulting in figures that closely reflect market worth and do not vary by levels of 10% or more. There have only been two studies that investigate valuation variance (Brown 1985 and Hutchinson et al 1996) so it is difficult to draw sufficient conclusions until further studies are reported. It is, however, valuation variance which determines negligence as it is the variance from the valuation of the expert witness that is investigated by the courts. All valuers should strive to assemble objective evidence which should result in competent valuers producing figures which do not vary from each other by levels of greater than 10%, but this necessitates valuers being permitted access to an identical substantial objective information base.

Without accurate valuations, prices negotiated are inaccurate and further valuations based on these inaccurate transaction prices are misleading. The sub market is pushed further and further from market worth and equilibrium and the market becomes even more inefficient. Whether or not valuations can be proved accurate and whatever the cause of inaccuracy, be it the valuation technique or valuer error, the only certain way to improve the valuation process is to improve the inputs into the process. No matter what valuation model used, the saying 'garbage in, garbage out' remains true. A positive way to improve the process, both its efficiency and reliability, is to provide an accurate, comprehensive, reliable and easily

accessible source of objective comparable evidence. Improving the inputs in this way will improve the outputs and improving data availability may reduce the frequency of negligent claims.

2.7 Summary

This chapter investigated the valuation production process. It began by outlining the role of the valuation and the different types of valuation prevalent in the property market and stated it was the open market valuation of commercial office property that was the main focus of this thesis. Section 2.2 described what factors influence the value of property. The main focus of the chapter however was comparable evidence. These are the data used by the valuer in the production of a valuation. It was argued that these data provide the objective base of a valuation. Objectivity is crucial in valuation and objectivity was defined as using good quality comparable evidence to extract value characteristics applicable to the subject property. Without this objective evidence valuers are forced to use subjective judgements. Subjective judgements themselves take two forms, total subjectivity or partial objectivity. Valuation judgements may be totally subjective where the valuer has had no experience in dealing with similar property types so is simply estimating the value of the subject property based on no evidence. Partial objectivity is where the valuer has some experience in dealing with similar properties so can apply limited knowledge to the valuation but must fill in any gaps in evidence with a judgement of prevailing market levels. The first scenario is the most likely to lead to inaccurate valuations whereas total objectivity, where the valuer has plentiful evidence on which to base the valuation, is the scenario most likely to produce accurate valuations. It was concluded that accurate valuations require plentiful comparable evidence upon which valuers may base analysis.

The chapter progressed to review the valuation accuracy debate and the numerous studies undertaken to assess whether valuations are, or are not, in fact accurate. The increase in frequency of negligence claims against surveyors illustrated by the number of recently reported cases, suggests that many valuations are not accurate. Studies by Hager and Lord

(1985) and more recently Hutchinson et al (1996) have produced evidence which supports the contention that many valuations are outside the criteria of accuracy laid down by the courts, that is a valuation must be within a 10-15% bracket of a property's true value. Other studies by Brown (1985 and 1992) and IPD (1988,1990 and 1994) have provided statistical evidence to indicate that valuers do provide valuations that are closely related to the selling price of the property. However, all studies have their limitations and there is no definitive study that proves valuation accuracy or otherwise.

The main thrust of the chapter was that objectivity is crucial to valuation accuracy and objectivity stems from comparable evidence so increasing available valuation evidence will improve valuation accuracy.

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Chapter 3. The research issues and research methodology.

3.0 Introduction.

This chapter explains and justifies the methodology used for data collection during this research. The chapter begins by assessing the importance of data and information in the decision making process and their relationship with the production of a property valuation figure. There follows an analysis of previous work undertaken to assess the availability of property data but more specifically valuation data. The chapter then progresses to discuss the methodology used to collect data relating to valuation evidence availability, data release and pooling and the National Valuation Evidence Database. Sections include a discussion on appropriate qualitative and quantitative data collection methods, questionnaire design and question structure techniques. The chapter concludes by examining the preliminary stages of the methodology, the pilot work.

3.1 Data, information and the decision making process.

Data are the raw material from which information is built. Information is then assembled to produce understanding and then knowledge. Data are building blocks, relatively meaningless on their own, but when brought together, analysed and presented in a clear and meaningful manner, they become information. Information is the form in which data are presented to the lay person. If information is meaningful it allows the formation of views, opinions and judgements and the undertaking of actions. The validity of information stems from the validity of the underlying data and the accuracy with which these data are manipulated. There are five characteristics of good information (Stamper and Price 1992). To be effective information must be current, timely, relevant, consistent and presented in a usable form. Without each of these five characteristics the information is flawed and its usefulness diminished.

The decision making process relies upon information and this information is used as the basis for the decision. Information provides the decision maker with the ability to select one decision option in preference to another because the information collected suggests that one decision will produce a more favourable outcome. Without information, decision makers would have no basis for the selection of a specific decision option. They would be forced to 'guess' as to the optimum decision option, that is make a subjective assumption as to the outcome of each separate decision. Information provides the decision maker with the objective base from which to assess decision outcomes and hence select the most favourable.

A valuation involves a substantial decision making procedure and relies upon good quality, as well as a sufficient quantity of, information. When producing the valuation figure, the valuer must first decide upon the valuation methodology to adopt in order to define information requirements. He/she could ignore all evidence or fail to collect any evidence and make a subjective judgement as to the value of the property, this would be equivalent to selecting a decision option based upon no information. A common procedure is for the valuer to collect and assimilate as much comparable evidence as possible with each piece of comparable evidence providing information in the form of the transaction price or rental value formed from the interaction of a property's value factors which themselves are data. Analysing these data provides meaning to the price or rental value as the valuer can identify exactly why the price or rental figure is at the level it is. These value factors individually add value to the property and also interact and combine to further influence the value of the property. Separately, each value factor is an item of data and when combined with each other produce information. The valuer, in order to satisfy professional requirements, should attempt to collect as much information as possible. Using only three comparables, for example, may prove misleading as the prevailing price or rental value for one comparable may not reflect the open market level due to the influence of a special purchaser or other anomaly and this will influence the final analysis. Collecting as many comparables as possible will minimise the affect of the misleading comparable which could otherwise seriously skew a small sample. There still remains the problem of systematic bias. With large amounts of data available, valuers may collect only data which supports their initial subjective view of

the property's value, even if this is a subconscious rather than conscious procedure. The only way to overcome this problem is for the valuer to approach the valuation of each property with an open mind collecting and analysing all the available evidence before forming any conclusions to the value of the property, that is be objective.

In the valuation process, the valuer will break down the collected comparables into their separate data items, each of which has an influence on the final value of the property, in order to allocate a value to each item and adjust this value in relation to the characteristics of the subject property. Once all the value factors are analysed, the valuer can develop a value profile of the subject property, adjust for local market conditions and economic trends and produce the final valuation figure. This figure is the information presented to clients, all be it as part of a wider valuation report. The Mallinson Report (RICS 1994) stresses the need to widen the valuation report to allow a further, more detailed explanation of the final figure and to improve the quantity and quality of the information such a figure conveys.

Greater availability of data reduces the possibility of error resulting through false, inaccurate or misleading comparables which skew small data samples and cause the valuer to produce an unreliable valuation. This illustrates the importance of the valuer collecting as many items of comparable evidence as possible.

3.2 Literature review - current data availability.

Valuers working in the property profession are in an ideal position to comment on the availability of property data. The levels of property data, particularly valuation evidence data, will fluctuate depending upon the nature of the market. In a flat, stagnant market, transactions take place at an extremely slow rate limiting available evidence. In these cases there tends to be a correlation with correspondence in the property press calling for increased access to property data. The flat market of the early 1990's prompted considerable discussion, particularly in the Chartered Surveyor Monthly (CSM) in 1992, concerning the availability of data and what could be done to improve the situation (Moreton 1992,

Bleasedale 1992, Gardner 1992, Pickersgill 1992, Martin 1992). Since 1994 the market has picked up so debate surrounding data availability has subsided and switched to other issues such as Estimated Realisation Price.

The next section reviews the comments of valuers pertaining to data availability, or rather the lack of it. It also examines a survey conducted in 1992/93 which investigated data availability in the public sector (Wyatt 1995) and concludes with a discussion on the necessity of data release and pooling given the evidence to date.

3.2.1 The data availability issue.

The previous sections and chapter have emphasised that comparable evidence is essential for the production of a valuation. Valuers should not only collect this evidence but maintain a detailed record of what evidence was used where and the affect of the particular piece of evidence on the final valuation figure. Such a record is important because if a valuation figure is ever challenged in court, the court regards comparable evidence as vital for the defence of the valuation. Without a record of the evidence used to produce the figure, the figure is virtually impossible to defend from criticism. Valuers are obviously concerned when valuation evidence is unobtainable or out of date and are forced to produce valuations with little evidence. They must rely on their own subjective judgements, which although are built from experience of the local market and previous transactions, cannot be as accurate as the hard facts of an up to date comparable transaction. It is therefore not surprising that when evidence is scarce there is considerable correspondence in the form of letters to property publications suggesting that availability must be improved and, occasionally, ways to achieve this.

Moreton (1992) stimulated a substantial volume of correspondence in the CSM in 1992 by advocating a centralised Databank of property transactions. He suggested a system where confidentiality remained intact but from which valuers could obtain comparable evidence arguing this would make comparables more readily available and up to date. In a subsequent

article Moreton (1992b) concluded that the level of information outside of the large firms was extremely low and there were few secondary sources available. In the absence of in-house comparable records, such a national Databank of evidence could lead to an increase in data availability, possible leading to a reduction in negligence claims.

Both Bleasedale (1992) and Gardner (1992) agreed with the comments of Moreton relating to a centralised database saying it would be "invaluable" and was "long overdue" (Bleasedale 1992). Gardner illustrated the problems of a limited Databank quoting as an example a scheme he began to promote co-operation in the exchange of evidence between agents in Manchester. Larger firms refused to co-operate in the data sharing scheme and those that did found it unnecessary in the boom that followed soon after the scheme began. Pickersgill (1992) pointed out that a centralised Databank was already in existence in the form of the Valuation Office Agency databases and releasing such data would greatly increase data availability. Martin (1992) used the Building Cost Information Service (BCIS) as an example of how a Databank could work effectively. This on-line subscription database service provides building cost information concerning the cost of individual building items and is used especially by quantity surveyors in project costing. BCIS was established in 1962 to exchange information between quantity surveyors (personal correspondence with Ian Pegg, BCIS). Its information is generated by its subscribers so the subscribers are aware of the strengths and weaknesses of the data. The major initial problems revolved around the computing platform used as this was before the DOS platform was developed. Technology for on-line systems is far less of a problem now especially since the development of the internet.

Since 1992, correspondence on data availability has all but ceased with attention switching to other areas as activity in the market gradually increased. The Mallinson Report (1994) briefly renewed the debate by commenting on the lack of data available and the need for the creation of national databases to which the whole profession contributed and had access. The literature review in chapter 2 also highlighted how academics view data availability both for research purposes and its affect on the performance of the profession.

A study for the Society of Property Researchers (SPR 1995) was working paper 1 of a series designed to investigate data issues. The study emphasised the need for good data as good data "inform the decision making process". SPR believed the current sources of property data, outside specific in-house comparable databases, were "generalised, fragmented and difficult to desegregate". The study also argued that poor quality property data rendered real estate appraisal the poor relation of other investment markets. It was suggested that the ideal would be a comprehensive dataset, that is data relating to a wholly representative subset of features of the commercial property market such as supply and demand and rental and capital levels of particular property types within definable locations for example, which could be disaggregated if required to its most fundamental components, these components being individual properties. (SPR 1995)

Several national initiatives have been developed recently with the specific aim of increasing the availability of property data throughout not only the property profession but other professions and the public at large. These new initiatives can be regarded as an indication that there is a definite need to improve current data availability in relation to all property data throughout the profession. The RICS have developed a policy to support initiatives such as the National Land Information Service, Scottish Land Information Service, National Geo-spatial Database Framework (NGDF) and data provision over the internet. In its executive summary (RICS 1997) of its policy towards the availability of land and property data the RICS defined its aim as:

> *"To ensure that society benefits from wide access to land and property information allowing informed decision making and promoting a simpler and more transparent property market for the good of the economy"*

The RICS recognised that:

> *"...the better the information available the better the likely outcome (financial or social) of the development or use of the asset"*

The very fact that the RICS has a policy towards promoting the availability of land and property data and that there are several initiatives (dealt with in more detail in Chapter 7) designed to increase data availability indicates a definite need and demand for increased access to property data.

3.2.2 Data availability survey of public sector valuers.

As part of Wyatt's PhD thesis investigating the use of GIS in property valuation he undertook a detailed survey of Local Authority valuers in 1992/93. A postal questionnaire was used to collect the survey data which examined the following issues; property data access, sources of property information and data requirements. The survey concentrated entirely on local authorities because they are responsible for management and control of a substantial national property portfolio and to manage it efficiently require access to a wide variety of property data (Wyatt 1995)

Wyatt was also interested in the use of GIS and value maps and Local Authorities were far more advanced in the use of GIS at that time than the private sector. The survey covered County, London and Metropolitan borough councils and a sample of Borough, District and City councils. The overall response rate received was 73%, 150 in total, 54% of which were completed by the target respondents which were public sector surveyors.

The results showed that only 3% of respondents believed that the provision of property data was any better than reasonable and 88% thought transaction data should be made more readily available. The main factors preventing access to comprehensive property value data were thought to be commercial secrecy (defined as competitive advantage in this thesis) followed by confidentiality. In an open question regarding the reasons for not releasing property data, the main concern conveyed was the protection of confidentiality although one comment read "How can one determine 'open market value' if crucial property value data is not available due to confidentiality constraints."

Wyatt provided a list of property data sources and respondents were asked whether they used the source daily, weekly, monthly, annually or not at all. The most frequently used data sources were Local Authority data, agents particulars and published information, although this seems a wide ranging term which covered many items of the list of sources provided. Many respondents were unsure of the quality and accuracy of the data sources but overall the results showed that the valuer must "rely on a myriad of data sources to gather sufficient information for a valuation"(Wyatt 1995)

The most prevalent use of transaction data was for comparable evidence purposes but such data were also used for investment and development decisions, property management and planning. Almost 100% of respondents regarded the preferred level of detail for property data to be at the individual property scale. Further analysis found a strong positive correlation between the frequency of use of property data and the ability to access that source and also there was a correlation between frequency of use and quality and accuracy, though this time slightly weaker. Wyatt summarised the results by commenting that the majority of Local Authority estate managers felt the provision of property data was poor and they should be made more readily available. There were, however, concerns expressed about confidentiality if property data were made more freely available.

3.2.3 Availability issues.

Correspondence in the property press and the work of Wyatt and strongly suggests that property data availability was certainly poor in 1992 and the consensus was that it needed improving. The situation with regard to general property data availability has changed for the better since 1992 with the expansion of Property Intelligence Plc's FOCUS system and the introduction of the Estates Gazette interactive(EGi) web site. Surveyors now have on-line access to published property data but there is no evidence to suggest that the situation pertaining to the availability of comparable evidence has changed greatly since 1992 other than the level of transactions has increased due to the prevailing market conditions which has generally silenced data availability criticisms. The support given by the RICS to

initiatives aimed at improving data availability clearly indicates an awareness of the problem and a willingness to address the issue. The concept of a database of valuation evidence has been suggested before where concerns have arisen over the lack of available data. Wyatt's research and the research undertaken during this thesis, discussed in the following sections, strongly suggest that a single source valuation evidence database will increase the available evidence and improve the quality and reliability of property valuations. Current data accessibility levels are unacceptable and in need of substantial improvement.

3.3 Research issues and survey research

3.3.1 Research issues and the need for survey research

This research identified, from case law reports, that there was an increasing frequency with which valuers were facing claims of valuation negligence during the early 1990's. Comparing the number of negligence claims faced by surveyors in the property boom years of the late 1980's and the recession years of the early 1990's showed a large increase in such cases. The law section of the Estates Gazette reported three similar cases in a single issue (Estates Gazette 27 EG 125 1996). The common link between such cases appears to be the lack of quality comparable evidence available to the valuer necessary for the defence of the valuation figure. During the literature review it became clear that a lack of objective valuation evidence forced an increase in the subjective element of the valuation raising the probability of valuer error. This thesis therefore investigates the following main hypotheses. Firstly; **the release and pooling of valuation data held by professional property service providers into a national database of valuation evidence will increase the availability of objective comparable evidence for the production of property valuations.** Secondly; **it is possible to accurately and comprehensively record property transaction data using electronic means and data quality standards.**

This thesis concentrates on these hypotheses by focusing, in particular, on possible ways of developing a national database system. After examining the National Land Information Service initiative (see chapters 6 and 7 for details), it was deemed a logical step to use such technology to provide an on-line database system with the intention of providing valuers with a comprehensive, nationally accessible valuation evidence database.

To develop this national database concept further required the collection of opinions, attitudes and comments from those that would benefit from the system; the valuers. It was necessary to adopt a methodology that would allow the collection of large quantities of data investigating these attitudes and opinions in order to examine the demand and potential for further research. It was necessary to adopt a methodology that allowed the collection of large quantities of data the reason being that it was necessary to examine the attitudes of the valuation profession and this was not possible unless as wide a range of opinions as viable could be collected to allow the drawing of conclusions relating to the whole profession.

Two broad areas were defined as requiring further detailed investigation and sub hypothesis were developed for testing Firstly; whether valuers actually required a national system to increase data availability and, secondly; what valuers would actually require from such a system. The sub hypotheses relating to these areas read as follows:

si) There is insufficient evidence available to produce accurate valuations.

sii) Valuers within private sector professional property service providers are in favour of releasing and pooling valuation data.

siii) The valuation profession are in favour of the concept of a National Valuation Evidence Database.

sv) Existing methods of recording, storing and retrieving valuation data for comparable purposes need to be substantially improved

In order to collect such research data and test the hypotheses it was necessary to examine the opinions and attitudes of as wide a variety of valuers as possible. This was necessary to allow the formation of conclusions from the results as to the demand and potential a national system and indeed the system requirements, from the point of view of the whole profession

and not just a small minority. Possible research methodologies acceptable for the collection of attitudes and opinions include surveys and case studies. Case studies, although they could investigate the areas of interest in great detail and possibly examine the potential workings of a system, would not permit the collection of sufficient quantities of data or the correct type of data necessary to permit the formation of conclusions applicable to the whole profession. Within resource constraints, six case studies could have been undertaken. This would not have allowed comprehensive coverage of the UK valuation profession and would only have permitted the investigation of two firms from each firm type (see section 3.4.3). This was deemed insufficient to permit conclusions to be drawn concerning the attitudes of the whole valuation profession and to identify statistically significant data relationships. Survey research was the only realistic research methodology available to collect the required data to test the hypotheses with case studies employed for data collection necessary during the latter stages of the research project.

To develop an effective survey it was necessary to examine survey research methodology in order to identify appropriate data collection techniques, a data collection strategy and data analysis tools. The next section examines such methodology and also describes the data collection techniques chosen for the survey and the reasons for their use.

3.3.2 Survey research methodology

A survey may be defined as:

> *"A form of planned data collection for the purpose of description or prediction, as a guide to action or for the purpose of analysing the relationship between certain variables."* (Oppenhiem 1966, p1)

An effective survey must be well planned, well designed and well implemented. Such a survey can:

> *"...collect rich and unique data on specific or general topics and the adoption of a flexible but methodological approach will increase the probability of successful research."* (Oppenhiem 1966, p3)

It is vital to adopt and follow a set procedure when undertaking survey research. This ensures research is progressive and becomes increasingly structured towards the implementation stage. The work of Oppenhiem (1966 and 1992) provides the researcher with a valuable guide in undertaking a successful survey. His methodology is commonly adopted by social scientists because it is concise and explicitly clear and he is widely accepted as one of the leading experts in social science research. Other research methodology writings exist but none set out the methodological process in such an understandable format. He identified a fourteen stage approach to survey research and it was decided to adopt his approach as the methodology for the survey research section of this project. His fourteen stages are:

1. Deciding upon the aims of the study and the hypotheses to be investigated.
2. Reviewing the relevant literature along with discussions with informants and interested bodies.
3. Preliminary conceptualisation of the study followed by a series of in-depth interviews.
4. Designing the study and assessing its feasibility.
5. Deciding which hypothesis will be investigated and making the hypothesis operational.
6. Designing or adapting the necessary research instruments and techniques.
7. Doing the necessary pilot work.
8. The sampling process: selecting the technique, identifying methods of dealing with non-response.
9. Drawing the sample.
10. The field work stage : data collection and returns.
11. Processing the data, coding the responses and preparing data entry.
12. The statistical analysis; testing for statistical significance.
13. Assembling the results and testing hypotheses.

14. Writing up the results : relating the findings to other research and drawing conclusions and interpretations. (Oppenhiem 1992)

Any research must commence with an idea from which the research aims and hypotheses are formulated. This idea will identify the particular subject area by reviewing relevant literature to allow the development of the idea and the refinement of initial aims and hypotheses. Once aims and hypotheses are in place, it is necessary to adapt, adopt, or a combination of both, research methods to reach research aims and test hypotheses. These research methods are then applied to the study population, from which a representative sample is usually taken using sampling techniques, and the resulting data analysed and applied.

Surveys are a method of collecting research data and are a common methodological approach but, according to Oppenhiem (1968), are too often badly designed and planned and fail to provide the researcher with the desired data. Indeed survey research:

> *"...is an operation of some complexity."* (Oppenhiem 1966, p2)

It is therefore necessary to undertake extensive pilot and design work before implementing a survey. Survey design must establish the method of data collection, the variables to be measured, the sample to be drawn, whom to question and how often, response coding methods and the appropriate statistical methods to ensure the collection of the correct data types. Before pilot work and the main field work can begin, it is necessary to identify the data collection tools available within survey research and examine which are the most appropriate for specific circumstances.

3.3.2.1 Data collection techniques

There are four data collection methods that exist for qualitative and quantitative social science research. These are:

- Face to face interviews
- Telephone interviews
- Postal questionnaires
- Observational research

It is possible to utilise a single method of data collection throughout the survey section of the research but it is more likely that different techniques will be used at different stages of the survey. The method chosen is dependent upon the aims of that stage. To ensure the selection of the appropriate data collection method, preparation work must examine the advantages and disadvantages of each method.

Observational research is inappropriate for large scale survey research because of the data coverage obtainable and the type of data collected. It is not possible to observe peoples attitudes and opinions only actions and reactions. Face to face interviews, telephone interviews and postal questionnaires consist of the same three interacting variables. These are the interviewer or researcher, the interviewee or respondent and the interview schedule or questionnaire. The difference between an interview schedule and a questionnaire is fairly clear, and the final versions of both are usually developed only after extensive pilot work. An interview schedule may be as structured or as flexible as the interviewer desires and the level of flexibility will depend upon the purpose of the interview. The schedule may simply be a list of points the researcher wishes to cover during the interview or a detailed list of questions that must be asked in the correct sequence. The more structured the interview schedule the more like a questionnaire it becomes. A questionnaire can be defined as:

> *"A method of gathering information from a number of individuals, a 'sample', in order to learn something about the larger population from which the sample is drawn"* (Ferber et al 1980, p31)

A questionnaire is a standardised sequence of questions usually designed for the respondent to complete without the assistance or presence of an interviewer. Questions may be open or closed depending upon the type of data the researcher wishes to collect but are usually closed to keep questions and answers as simple as possible and to minimise misunderstanding, ease response coding and date entry and also facilitate statistical analysis. Appendix Aii) describes questionnaire and question design methodology.

The techniques and procedures for survey research data collection techniques are well documented in many research methodology texts (see for example May 1997, Oppenhiem 1992, Schofield 1996, Thomas 1996) as are the advantages and disadvantages of each. Appendix A provides a detailed examination of each technique and section 3.3.3 describes the selection of the appropriate techniques and the reasons for the particular choices.

3.3.2.2 Pilot work

During survey research, identifying the aims and objectives of each survey stage (See figure 1.1) permits the identification of the appropriate data collection instruments. Before the main survey field work can begin there must be extensive field work to design and test the data collection tool to ensure it efficiently collects the desired data. Oppenhiem (1992) identified that pilot work is an essential stage in any successful survey research. Again he described a number of progressive stages which become gradually more structured.

1. Literature review of the subject area.
2. Interviews with key informants which may often be long and unstructured discussions.
3. Pilot those open answer questions that have been turned into closed questions to make sure all possible responses are covered.
4. Pilot question wording and structure to ensure the question conveys all the information it should and that this information is of sufficient quality and will elicit the appropriate response.

5. Pilot the letters of introduction proceeding the questionnaire to ensure they meet their objective of increasing response rates.
6. Pilot the draft questionnaire with respondents that fall within the population of the main survey.

Initial stages are unstructured and this is where face to face interviews are ideal. Oppenhiem (1992, p53) believes the aim of pilot work is to:

> *"...optimise the effectiveness of the final questionnaire by removing the pitfalls of survey design."*

Pilot work is commonly used to develop a draft questionnaire for significant surveys and also tests this questionnaire before final implementation to ensure it can collect the required data.

> *"A pilot investigation is a small trial before the main investigation intended to assess the adequacy of the research design and of the instrument to be used for data collection; piloting the data collection instrument is essential, whether interview schedules or questionnaires are used."* (Wilson 1996, p103)

For a questionnaire aiming to collect quantitative data, pilot work is essential to devise response categories for respondents and test any ranking instruments. Without adequate pilot work, response categories may not be exhaustive and question responses skewed. Areas to explore during the testing of the draft questionnaire include: Do respondents understand the question as initially phrased?, Does the questionnaire take too long to complete?, What is the best question order?, Are all the response categories available?, Do questions discriminate effectively between different respondents?. (Wilson 1996) After successful piloting the questionnaire is ready for implementation.

When the questionnaire or interview schedule is complete, questionnaires are sent or interviews arranged and conducted. Questionnaires are usually pre-coded so data entry can

occur immediately once a response is received. Coding unstructured or semi structured interviews is more difficult and can only be completed after all interview data is available as it is unknown until that time what coding categories are required. Postal questionnaires suffer from non response rates and when all efforts have been exhausted in trying to increase response rates, then the researcher must ascertain the nature of non respondents to account for any bias introduced into the sample.

Results from field work once recorded and analysed, perhaps using an appropriate software package either statistical one or a qualitative data analysis package such as NUDIST, are used to test the project hypotheses and provide answers to initial research questions. Results can then be exhaustively written up and disseminated.

Successfully following the survey methodology stages outlined by Oppenhiem (1992) and the sub-stages of pilot work provides a justifiable methodological approach to survey research leading to valid and defensible results.

3.3.3 Research methodology applied

The overall aim of the research, described in chapter 1, was to investigate the feasibility of creating a National Valuation Evidence Database (NVED) for the office valuation profession. If such a database proved feasible, the project then aimed to develop a framework for the creation of such a system. To investigate this feasibility it was necessary to conduct a large scale survey examining the opinions and attitudes of the valuation profession. The main survey had to be on a such a scale as to permit the collection of as wide a range of views from the profession as possible in order to determine whether valuers in different areas hold different opinions and valuers in different firm types hold different opinions. Only a large scale survey would allow results to validly be used to represent the views of the whole profession. With the time and resources available the choice of data collection method fell between telephone interviews and a postal questionnaire.

Postal questionnaires were chosen primarily for the coverage achievable given time and resource constraints but also for the standardised nature of the questionnaire employed, the consistency of approach and the ability to repeat the study if necessary at a later date to investigate whether attitudes have changed. The quantitative nature of the questionnaire allowed the use of inferential statistics and therefore, if the sample were representative, conclusions as to the attitudes of the whole population of office valuers. The rejection of face to face interviews was again primarily due to the need for large scale coverage in several locations, resource constraints, consistency and that it was not necessary to collect qualitative data which is the main strength of the face to face interview. Telephone surveys were rejected due to the nature of the surveying profession. Surveyors are regularly in and out of the office and to conduct what would have been a 15-20 minute interview would have proven difficult to arrange. Postal questionnaires would allow busy surveyors to fill in the questionnaire at their convenience, during a lunchtime or perhaps over a number of sittings, although this would probably not be necessary given the length of the questionnaire. For telephone surveys to have achieved as great a coverage as postal questionnaires would have taken over 170 hours of telephone calls over a minimum of a four week period. This was considered too much for one researcher in terms of time commitment, consistency would have been and the expense was far greater than using the postal service.

Pilot work gradually developed a structured questionnaire which was then used to gain maximum coverage given the time and resources available. The intelligence level of the respondents allowed the legitimate use of postal questionnaires and questions within the questionnaire could be reasonably complex. Section 3.4 describes the way in which pilot work was structured to develop the final questionnaire and also briefly describes the results of the pilot work, of interest on their own.

The survey research was broken down into four main stages and the data collection tools used for each area are shown below.

Stage 1	Initial background interviews with key informants, face to face interviews.

Stage 2	Survey of existing comparable databases, postal questionnaire.
Stage 3	Interviews with practising valuers, semi-structured face to face interviews.
Stage 4	Main survey of the valuation profession, postal questionnaire based on the results of the previous stages.

The design of a closed answer, structured, quantitative questionnaire should be a "carefully planned operation" according to Hanville, Jowell et al (1987) who also sum up the requirements of such a questionnaire:

> *"A good questionnaire has to be designed specifically to suit the study's aims and the nature of its respondents. It needs to ...be clear, unambiguous and uniformly workable. Its design must minimise potential errors from respondents, interviewers and coders. And, since people's participation in surveys is voluntary a questionnaire has to help in engaging their interest, encouraging their co-operation and eliciting answers as close as possible to the truth."* (Hanville, Jowell et al 1987, p27)

Indeed it is generally recognised that the best starting point for questionnaire design is to refer to previously questionnaire that successfully achieved its aims. (Oppenhiem 1992, Hanville, Jowell et al 1987). To be successful design and question wording needs to follow a set procedure. Therefore it was necessary to comprehensively review the methodology of questionnaire design and question wording. The review of this literature appears in appendix Aii.

3.3.4 Non response rates

Postal questionnaires are susceptible to high non response rates. This is partly due to the lack of an interviewer to ensure response and partly due to the lack of direct contact between the researcher and potential respondent. This lack of direct contact makes it easy for the interviewee to ignore the questionnaire. Even in government sponsored, high profile postal surveys of groups with an interest in the research topic, response rates rarely exceed

80% and 40-60% is common (Oppenhiem 1992). Unless people have an incentive to complete the questionnaire, which could be a special interest in the topic or a material incentive, then response rates of 40% are not uncommon (May 1993). The only way to increase response rates is to send out more questionnaires and to ensure that the original questionnaire is as appealing, interesting and easy to complete as possible.

Oppenhiem (1992) believes it is important to realise that non responses do not only lead to a reduced sample size and reduced credibility amongst readers but also the possibility of bias being introduced to the sample. Non response is often not a random process. It may be the case that it is a particular group of respondents with particular attitudes or opinions that are not responding to the questionnaire. For example, potential respondents who are against a particular innovation into which a questionnaire is researching may not respond leading to the research discovering large numbers of favourable responses which are not representative of the sample and therefore the population. Any conclusions drawn from the questionnaire results would be dangerously inaccurate.

Suitable reminders, telephone calls and pleading, will increase initial response rates but there are always those that do not take the effort to reply as they perceive no benefits to themselves of doing so. It is therefore necessary to try and ascertain the type of respondents who have not returned their questionnaire. As Schofield (1996, p51) comments:

> *"...positive effort should be made to follow up non respondents. The task for the researcher who wants sample results which truly represent the population studied... is to get as much information as possible on those individuals who are still missing when all possible action has been taken to maximise response rates."*

It has been identified that respondents who return their questionnaire very late and only after much persuasion are similar to those that did not reply at all (Oppenhiem 1968). Analysing the late responses provides some idea of the attitudes of non respondents so taking account in the survey results of any bias introduced to the sample. There are two methods to discover whether, and in what way, bias has been introduced into a sample. Firstly;

comparing respondents to non respondents on the original sampling list and, secondly; comparing early respondents to late respondents in terms of question answers. Whatever the methods used to encourage response rates and ascertain the nature of bias one thing is certain.

> *"The problem of non response has to be treated. Vagueness, or worse, total lack of information on this topic is no longer acceptable."*
> (Schofield 1996, p52)

3.4 Pilot work in practice

3.4.1 Introduction.

Pilot work is an essential process that must be completed comprehensively before any survey research may commence. Pilot work aimed to meet the following objectives:

- Explain the NVED concept and gauge initial reactions, criticisms and ideas.
- Assess the feasibility of the NVED concept.
- Investigate the extent of computerised comparable database system use.
- Aid the development and design of an extensive structured questionnaire survey.

The pilot work consisted of a number of progressive stages, with each stage developed from the results gathered during the previous stage. The stages implemented are as follows, the results of which are described in more detail in following sections.

- Unstructured, qualitative interviews with the heads of research and database administrators in major chartered surveying practices and academics.
- Semi-structured interviews, consisting of both qualitative and quantitative elements, with practising valuers.
- A small postal questionnaire survey investigating the use of computerised comparable database systems.
- The initial development and piloting of the main questionnaire survey instrument.

3.4.2 Stage 1 Unstructured qualitative interviews.

These interviews took place during the summer of 1994. In order to investigate the feasibility of, and general reaction to, the concept of a national database system, qualitative interviews were conducted with the research directors of eight major chartered surveying practices. These interviews were unstructured in nature to allow maximum flexibility. This permitted the optimum coverage of a wide range of topics in maximum detail and allowed, perhaps more importantly, in depth discussion of areas of particular interest or concern to the interviewee. The interview data was extensively analysed and each interview broken down into specific topics covered. All responses to a specific topic were then combined to provide the general reaction to that research area.

The interviews also examined the use of existing computerised comparable database systems with the resulting data used to produce the questionnaire instrument for stage 2 of the pilot work. Results also contributed to the development of semi-structured interviews undertaken with practising valuers later in the research.

These interviews targeted research heads or directors of chartered surveying firms for the following reasons:

- Their detailed knowledge of all aspects of the property market, particularly valuation and property data issues.
- Their familiarity with data availability issues and data provision initiatives such as the National Land Information Service.
- Their knowledge of any database systems used within their practice.
- Their awareness of the debate surrounding data release and pooling.

In addition to the interviews with research directors, similar interviews were conducted with Professor Neil Crosby from the University of Reading, Dr Ian Cullen from Investment Property Databank and Nick Griffiths from Property Intelligence Plc. These interviews

covered not only the relevant areas detailed below but more specific matters which depended upon the specific interviewee, for example the problems of maintaining and updating large scale databases with Ian Cullen and Nick Griffiths.

The interviews, although unstructured, aimed to cover the majority, or all, of the following issues. The overall reaction to the research project, the presence or otherwise of in-house database in the interviewees firm, the problems associated with existing in-house databases and more general topics such as the requirements for raw or aggregated data, perfect competition, market transparency and market volatility. Also included were data issues, for example availability, confidentiality and competitive advantage and finally Valuation Office data and the possibility of its public release

3.4.2.1 Interview results.

Within the eight firms contacted during the pilot interviews there was no integrated, central, on-line comparable evidence database system. Comparable systems did exist in all firms but tended to be fragmented and very basic with different departments possessing separate databases each containing slightly different data. In some cases a number of systems existed within a single department, the result perhaps of the merger of several smaller firms. The main problem relating to the use of comparable systems was the spatial referencing mechanism of the database. The property's address was the sole means of referencing the property data and this system failed for the reason that it was possible to assign 4 or 5 different property address units to a single property. For example, two surveyors may be familiar with the same property but may commonly know the property by a different name, or one by a name and the other by a number. This makes the retrieval of data unreliable and frustrating. Without a standard address referencing system it becomes virtually impossible to link and combine datasets which is a contributing factor to the fragmented nature of existing database systems.

Problems associated with the release and subsequent pooling of private sector property data included confidentiality and competitive advantage. With regard to confidentiality, the interviewees emphasised that it is the clients that own the property data and not the surveying firms and for this reason confidentiality clauses imposed on surveyors often prevent the public release of such data. Confidentiality was not, however, seen as an immovable barrier as valuers swap large amount of data on the "data grapevine". If confidentiality clauses were effective then valuers would be prohibited from swapping data in this manner. Other organisations hold property data such as the Valuation Office and Land Registry and use such data to produce aggregated trends and statistics, so the protection of data through the use of confidentiality clauses seems ineffective.

Confidentiality was seen as a greater problem when it came to the release of lease incentives, the details of which are essential from the point of view of comparable evidence. Divulging such data may, it was argued, weaken the bargaining position of landlords in relation to existing and potential tenants. It could also be argued that this would in fact open up the market offering tenants a fairer deal and preventing artificially inflated rents. Competitive advantage built up over many trading years, usually by larger firms, was thought of as a more significant barrier. The benefit to a large firm releasing data into a monopolistic market is negligible, the benefit to smaller firms is astronomical, however this is not the case in a market approaching perfect competition where each firm would benefit equally. Where the property services market lies in market competition theory is open to debate and this, and the issue of competitive advantage, will be dealt with in greater detail in chapter 5.

When questioned as to the type of data preferred by valuers in their day to day tasks it was the common perception that raw data relating to individual properties were of far greater benefit when compared to aggregated data. Aggregated data, often in the form of trends and other statistics, were thought of as beneficial to general market commentary and short range forecasts.

In the opinion of the majority of interviewees, the introduction of a national database system would lead to an increase in the transparency of property data and hence market efficiency prompting movements in the property market towards perfect competition. Such a move towards perfect competition would increase the volatility of the short term market price of a property but increased market transparency should allow investors to identify areas of potential over supply so that they can invest in other sectors before that over supply takes effect and prices and rents fall. Market transparency would make it easier to identify changes in demand so new properties may be developed or existing properties redeveloped to prevent supply shortage and improve market efficiency.

All those interviewed showed great enthusiasm towards the research project and the NVED concept believing it would provide a much needed increase in data availability improving data transparency, market efficiency and the volume of transactions. Interestingly though, they were unsure of the reaction of practising valuers . The interviews provided some extremely useful evidence and a sufficient volume of data on which to base the remaining pilot work.

3.4.3 Semi structured pilot interviews

The development of semi-structured interviews stemmed from the results gained during the initial stage of the pilot work. These interviews consisted mainly of closed answer questions but with the occasional open question permitting lengthy responses and discussion. Time was allotted at the end of each interview for the interviewee to ask any questions and for further probing into areas covered in insufficient detail. Quantitative analysis was possible with the majority of the questions.

The identification of a sample on which to apply the interview schedule followed the development of the semi-structured interview procedure. In order to survey a representative cross section of those firms which provide a property valuation service, individual firm types

were identified to ensure each firm type was covered during the interview stage. There are three basic firm types definable as follows:

- Nationally based firms; large, multi branch practices, the head office of which was usually in London and has at least three regional offices, for example Jones Lang Wootton.
- Regionally based firms; medium in size based usually in the region's main city and with smaller branches throughout the region, for example Sanderson Townend and Gilbert in the North East.
- Locally based firms; small one office firms with work based around a city, town or within a rural area. This is the most common type of firm.

Local Authority valuers were ignored because they had already been surveyed in 1992/93 (Wyatt 1995) and those valuers employed to provide services for large organisations such as British Gas are limited to providing internal valuations and not satisfying external clients and are also difficult to identify.

As well as covering all firm types, the pilot interviews also covered a cross section of the country's office market. It was decided to select four office market centres each with differing characteristics in order to attract as wide a variety of responses as possible, essential for the development stage of the closed answer, structured. The four areas chosen were as follows:

- London; a very strong market and the hub of the UK office market with tertiary, secondary and primary office space and a wide variety of sub markets.
- Birmingham; a strong market and the UK's second largest city with a generally ageing office property stock.
- Leeds; a weak market with a medium sized, rapidly expanding city with prime office space constantly in development.
- Newcastle; a very weak market with a relatively small city with the majority of office space serviced by refurbished city centre properties with new developments rapidly appearing, particularly on the Quayside.

The four areas covered the South, Midlands and North of England to provide a cross section of opinions. No rural areas were surveyed as the nationally based firms do not usually operate in such areas or at least have no branches thus preventing contact with all the firm types in a single local market, which was the aim of the interviews. The office markets of rural areas are obviously small and so are the firms, so such firms are unlikely, according to previous work, to possess now or in the near future, office comparable database systems.

Surveying firms were identified using the Estates Gazette directory and were placed in the appropriate firm type category by identifying how many branches the firm had in a particular city, region and then nationally. Firms with only a single branch in a city were locally based firms and those with a number of branches in a city or region were regional firms. Those national firms would have branches all over the country. In the case of national firms, Jones Lang Wootton were used wherever possible to provide consistency and allow the analysis of response variation from area to area if the general practices and philosophies of the firm were kept constant. Jones Lang Wootton did not have a branch in Newcastle so an alternative national firm was contacted.

Regionally and locally based firms were selected from the Estates Gazette directory using random numbers. Telephone conversations with a relevant partner were used to ascertain whether the firm was willing to participate in the research and, if this proved to be the case, explain the nature of the project and the questionnaire structure. If the firm did not wish to participate a different firm was chosen then contacted, however this only happen in one single case. A letter explaining the background to the project, the NVED concept and a list of possible interview dates was then sent to each participating firm and a follow up telephone conversation confirmed the interview appointment. Interviews were carried out during July 1995.

Three interviews were carried out in each area, one for each type of firm, making a total of 12 semi structured interviews. This was deemed sufficient, in combination with previous work, to establish an indication of general reactions and opinions relating to a NVED and

also to generate sufficient data with which to design the main questionnaire. A brief outline of the results follows, brief because, encouragingly, the responses closely predicted those of the main survey. All areas covered in the semi structured interviews were covered in the main survey and a discussion of the main survey results takes place chapter 4. The semi-structured interview schedule appears in appendix Bii.

The main sources of valuation evidence stemmed from data originating from transactions, which incorporate sales, rent reviews, new leases, lease renewals and assignments or sub-lettings, with which the valuer or the valuer's firm had dealt directly. The availability of such data varied widely from a rating of 'average' to that of 'very good' depending upon the type of property and the level of activity within a particular market or submarket. The accuracy of these in-house data was regarded as 'good' or 'very good', with secondary sources such as other local valuers or the property press receiving lower ratings. The quality and completeness of in-house sources varied from 'average' to 'very good' with secondary sources again allocated lower ratings. Respondents were also questioned as to the probable affect of a NVED on the valuation process. 11 of the 12 respondents believed a NVED would increase available information and the majority that it would increase the efficiency of data collection. However interviewees were divided on the issue of whether a NVED would provide more accurate and reliable data, increase competition in the surveying profession or lead to the production of more reliable valuations.

The main barriers to data release were identified as confidentiality, competitive advantage and conservatism with the remainder being technical barriers associated with data release and pooling, issues which are dealt with in more depth during chapter 5. Two respondents, both from regionally based firms, were against the release and pooling of private sector data because they felt they would lose their competitive advantage reducing subsequent business activity. Eight respondents believed data pooling would eventually occur, although six of these thought it would not happen within 5 years. All respondents answered "yes" to the question "Would you like to see an accurate, reliable, comprehensive and nationally accessible valuation evidence database?", proving, initially at least, the demand and

requirement for a NVED system. Interviews also identified the information valuers regard as essential from comparable evidence which was used to design the main survey.

The interviews successfully examined a range of views from differing areas and differing firms providing interesting initial results and, in combination with other pilot stages, sufficient evidence for the development of the main survey instrument.

3.4.4 The use of computerised comparable database systems - a study.

Prior to the development of the main survey research, a small survey aimed at the larger surveying practices was undertaken to examine the current use of computerised comparable database systems. The survey aimed to investigate the following:

- The extent to which computerised database systems were employed in larger firms.
- The data that the systems were designed to record.
- Any standards used in the recording of data.
- Problems inherent in comparable database systems.
- Who records and has access to the data.

The results of this survey were then used to assess the use and effectiveness of current computerised comparable database systems and to aid the design of the main survey questionnaire. The results also identified where improvements were needed within current systems in order for such improvements to be incorporated in any NVED software.

Questionnaires were designed from the results gained in the exploratory pilot interviews outlined in the previous sections. 30 questionnaires were sent to all the head offices of large multi office branch surveying firms, a copy appears in appendix B. The head of research in such firms was identified as the target respondent as they were assumed to have detailed knowledge of data systems within their firm. 18 replies were received including the large majority of the UK's major surveying firms. Of these 18 replies, 17 employed a

computerised comparable database system but all but one firm used the system in conjunction with paper records and files. Respondents were asked to identify what data the database recorded from a list of possibilities. All systems recorded the address, property size, lease terms where appropriate, and the capital or rental values associated with the property. 94% recorded yield data, 69% accommodation data, 56% details of lease incentives where available, 25% data relating to the strength of the tenants covenant, 38% services data and 19% recorded the marketing history of the property.

Nine of the firms with a database system employed standards to monitor and ensure data quality. When questioned about the adequacy of these standards the mean response was that the standards were acceptable although three firms believed their standards were reasonably detailed.

Respondents were given a list of seven problems associated with comparable database systems and were asked to rank, in order, the top five. The purpose of this question was to identify problems that the design of any NVED software would have to overcome. The main problem identified was the unwillingness of the surveyor to actually spend the time recording the data, a factor attributed to laziness, computer illiteracy, bad training or a combination of the three. The second most common failing was the completeness of the recorded data, data items were missing or not input correctly. Thirdly was the lack computer literacy of surveyors preventing them from using the system. The databases' failure to be comprehensive was the fourth problem with records missing where they should have been. Fifth was the accuracy of the recorded data, could it be relied upon completely? Sixth was a poor interface making the database difficult to use and inaccessible and finally came problems associated with using the address of the property to reference the database record. This is a direct contradiction of the results obtained from research heads who identified address referencing as the main problem of database systems. This perhaps reflects the differing attitudes of researchers when compared to those in practice with researchers regarding technical problems, that is those relating to the physical database and data, as far more important than attitudinal ones, for example the unwillingness to release data.

The software used for the database system was split between bespoke and off the shelf products. 88% said their databases were on-line throughout the office and of those, 79% of the databases were on-line throughout branches all over the country. When questioned about those responsible for recording the data, the job usually fell to the surveyor involved in the transaction with a small number employing a specialist clerk. In most cases all surveyors in the department were permitted to access the data.

This was in no way a comprehensive survey but it does allow tentative conclusions to be drawn concerning the use of computerised comparable database systems within large surveying practices. 17 out of the 18 utilised computerised systems, a figure which is not at all surprising given the resources available within larger firm to develop and maintain such a system. It was expected that smaller firms would not be able to maintain such a system and this was identified as an area in need of investigation during the main survey. Gaps in the database records did exist with most respondents admitting that records were not comprehensive, especially in the data areas of lease incentives, marketing history and services, areas vital to the valuer for analysis and the drawing of conclusions concerning the true open market price or rental value of a property. Survey respondents attributed the surveyors unwillingness to spend time recording data for future use as the main problem of database systems.

The extent to which computerised database systems are used within large firms is encouraging although the figure of 17 out of 18 may be misleading as those who did not respond may have deemed it unnecessary as they did not possess such as system. Only tentative conclusions may therefore be drawn. Such system usage will only grow with improvements in technology, computer literacy and changes in attitude and, perhaps more importantly, once the full importance and value of information recording and retrieval is fully recognised.

3.5 Summary

This chapter investigated the provision of valuation data within the office valuation sector of the property profession by reviewing relevant correspondence over the last 6 years and also previous studies relating to data availability including that by Wyatt (1995) which investigated data availability in the public sector and concluded that only 3% of local authority valuers regarded the availability of data was better than reasonable. A study by the Society of Property Researchers was also examined. It was suggested that the level of correspondence relating to the lack of data availability within the profession is directly related to market activity.

The majority of the chapter was dominated by a thorough description of the methodology employed to collect data from the valuation profession to examine issues relating to this research. The chapter examined why survey research was actually necessary and described its aims of examining current data availability, sources of valuation evidence and attitudes to data release and pooling and a NVED. It was decided to adopt the methodology of Oppenhiem (1968, 1992) as the basis for the main survey because of its concise, linear approach to the subject.

The development of the main survey questionnaire followed extensive pilot work which was designed with the purpose of identifying research areas and formulating closed questions and responses for the main questionnaire. After examining data collection tools a postal questionnaire was selected for the main research data collection exercise with face to face interviews used for initial data collection. The stages and results of the pilot work were described in section 3.4 and suggested the main source of valuation evidence were transactions dealt with by the surveyors firm. 17 out of 18 respondents to a database questionnaire utilised computerised databases to store these data. The following chapter applies this survey methodology to undertake a substantial postal questionnaire survey of the valuation profession. The results of this questionnaire survey are disseminated during the next three chapters.

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Chapter 4. Current data provision within the office valuation profession : The valuer survey.

4.0 Introduction

This chapter investigates the current provision of valuation evidence data within the commercial office property market. The previous chapter described the methodology followed during this data collection and the pilot work leading up to the implementation of the main survey questionnaire. This chapter begins by describing the aims and objectives of the main survey before progressing to describe the sample, sampling procedure, the techniques used to code and analyse responses and the treatment of non respondents.

The remainder of the chapter then describes the results of the survey beginning with a general sample description before concentrating on the provision of office valuation data. Results include an identification of the main sources of valuation evidence, a description of their perceived accuracy, comments on the levels of valuation data available in the market and, finally, attitudes toward data release and pooling.

4.1 Survey background

4.1.1 Aims and objectives

The main survey research expands and develops those areas examined during the previous chapter especially the issues surrounding the release and pooling of valuation data into a national database system. This was necessary to identify whether data release and pooling was as feasible in practice as it is in theory. In order to investigate the issues, the survey needed to cover several key areas.

a) Current office valuation data usage .
b) The accuracy and completeness of valuation evidence sources.

c) Attitudes to data release and pooling.

d) Barriers to data release and pooling.

e) The advantages and disadvantages of a national database system.

f) Attitudes towards a national database system.

g) Valuation data recording standards.

Issues a-c are dealt with at the end of this chapter and test main hypotheses 1, and sub hypotheses i-iii, issue d is dealt with in chapter 5 and tests sub hypotheses ii and the remaining issues are examined during chapter 6 which tests sub hypotheses iv-vi.

In order to cover such issues in detail, two items were required. Firstly, a data collection method and secondly, a population from which to collect the data. A postal questionnaire was deemed the most suitable data collection method for reasons explained in the previous chapter and the population was defined as the whole office valuation profession. The next section describes the sample taken from that population.

4.1.2 Sample description

The valuer survey examined the attitudes of valuers towards the seven issues mentioned above. In order to investigate the current availability and sources of office valuation evidence it was necessary to target respondents involved in the day to day production of office valuations. The definition of the survey population was taken as all private sector surveyors involved in the production of office valuations in England and Wales. It was unrealistic to survey the whole profession and also extremely difficult as this would have involved the identification of every surveyor in the country producing office valuations on a regular basis. Instead it was decided to use the four areas within which the semi structured interviews were conducted (see section 3.4.3). These four areas would provide four areas of differing characteristics in different regions which would allow analysis to determine whether attitudes were related to the location of the valuer. The Estates Gazette directory was used to identify all general practice surveying firms in the central areas of the city using postcodes

as a guide. It would be extremely difficult to identify each office valuation producing surveyor in each firm so an alternative was to target one surveyor from each firm. Telephone calls to the surveying firm identified the surveyor commonly employed in the production of office valuations. Where possible the surveyor was spoken to directly to ensure his/her co-operation. The surveyor's name and the firm's details were then entered onto a database to ease general administration, the production of mailing labels and allow the keeping of records as to who responded and who needed a follow up telephone call to promote response. The definition of the sample is one office valuation producing surveyor from each surveying firm in the central areas of London, Birmingham, Leeds and Newcastle. Response rates, sampling error and other problems of the sample used are discussed later in the chapter. Using this sample avoids having to take a random sample of surveying firms from each are as instead every office valuation firm in the specific city is targeted making the sample more representative. Targeting named valuers who specialise in office property valuation (office property because the NVED software designed in chapter 8 is only designed to deal with office property at this time) ensures responses of the correct population. The Estates Gazette contained around 650 entries for the four areas which were reduced in number by 150 when the firms were contacted and it was discovered than they did not produce office valuations. This represents a percentage of the total population of around 25%.

4.1.3 Survey implementation.

On the completion of the sample selection and when all potential respondents details were on the database, the questionnaires were ready for distribution. Before the questionnaire was finalised, draft questionnaires were piloted to ensure the instructions conveyed the correct information, questions provided the appropriate response categories, the questionnaire was not too long and the covering letter properly explained the research aims. Valuers from a surveying firm in Newcastle, Sanderson Townend and Gilbert, were asked to complete the questionnaire and comment on any improvements required. A list of modifications was received and the modifications were made before the questionnaire was

piloted again using the same respondents for consistency. No further modifications were deemed necessary.

Each questionnaire was sent to the target respondent in an A4 envelope accompanied by a covering letter and a pre paid and addressed reply envelope. A copy of the questionnaire and covering letter appears in appendix C. The covering letter explained the background to the research project, the concept of a national database and accompanying recording standards, the aims of the questionnaire and an assurance that responses were confidential.

Once replies were received they were coded and entered into a statistical package for analysis (see section 4.1.4). An initial period of three weeks was considered sufficient for questionnaire completion and return and following the expiration of this period non respondents were identified and targeted with a follow up telephone call. Follow up telephone conversations ascertained whether the questionnaire was received, if completion was imminent and if respondents required another copy of the questionnaire because the original had not been received or had been misplaced. If it was not possible to contact the target respondent or the respondent required an additional questionnaire, a questionnaire was sent together with a follow up letter (see appendix Ci) reiterating the research aims and the importance of response. A period of two weeks was permitted for further responses before further telephone conversations targeted those that had still not responded and more questionnaires were sent where necessary. The cut off point for final responses was three weeks after the final follow up conversation. No more replies were received after this 3 week period apart from one response 6 months later which was duly ignored. Questionnaire analysis followed the closing date for replies.

4.1.4 Response coding and statistical analysis.

Once responses were received they were immediately entered into a statistical package, already pre-coded to ease data entry. The package selected was SPSS version 6.1 for Windows, a flexible and powerful statistical package commonly used within the social

sciences. SPSS eases data entry by allowing the coding of text responses using numbers as the value labels. For example respondents may have selected a response VERY GOOD which was coded using the number 5 so in data entry only the number 5 needs to be entered and not the whole text. This saves time during data entry and improves accuracy. SPSS also has the advantage of being able to produce reasonable graphical representations of results and data are easily imported into Microsoft Excel and Microsoft Word. The data entry procedure was designed so that each question or question part was allocated a column on the spreadsheet data entry display and each row represented a respondent.

SPSS allows the use of both descriptive and inferential statistics but the majority of the analysis revolved around the use of descriptive statistics. Once the descriptive statistics were complete they allowed the tentative formulation of hypotheses describing relationships between variables. Inferential statistics were then used to test these hypotheses. The statistical method used depended upon the data type. Most of the data were nominal, that is based around rating scales, with some ordinal data therefore permitting the use of the chi square statistic.

Once a hypothesis was formulated the relevant variables were selected and SPSS used to calculate the critical value of the chi square statistic. If this critical value was significant at the 1% level then there was a real relationship between the variables and the relationship was not solely due to chance. The 1% level indicates there is a 1 in 100 probability that the relationship was due to chance alone. With a representative sample and a statistically significant relationship it is possible to conclude that the relationship is applicable to the entire population.

Where two variables were described by ordinal data measures it was possible to examine relationships using Spearmans Rank correlation coefficients. This statistic indicates not only the strength of a relationship but also whether the variables are positively or negatively related. Again 1% significance levels were used to test if the relationship was real and not due to chance.

Chi square analysis was the most commonly used inferential statistic and reference to this statistic appears during the discussion of the questionnaire results. Descriptive statistics were used to provide the majority of the data analysis and these are illustrated by graphs where appropriate.

4.1.5 Non response.

Several methods were used in this survey research to increase response rates. The identification of a named individual and a direct conversation where possible aimed to ensure co-operation and personalised, headed covering letters were sent explaining the research and emphasised the importance of responding. Pre paid envelopes were also provided allowing the respondent to return the questionnaire at no personal expense. The questionnaire was designed carefully with the aim of attracting responses not repelling them. Careful records were kept of non respondents and follow up telephone calls attempted to ascertain the reason for non response. Further questionnaires were sent to these non respondents to encourage a reply and these telephone calls were repeated for a second time with those who had still failed to respond after the initial reminder.

After the period for responses had come to an end an attempt was made to discover the nature of the non respondents. This was achieved by comparing respondents and non respondents in terms of firm location and size. It was the London firms that reduced response rates with a rate of 25%, the remaining areas achieved response rates over 55%. Within London it was the small firms responsible for the low overall response rate. The responses of small firms, when they did reply, were compared to the total to identify any particular trends in the responses posted by such firms. Responses of small firms only differed in one respect from the overall results and this was in relation to the presence of a computerised comparable database system.

As non-respondents are often similar in nature to late respondents the last 20 responses were compared to the first 20 responses and the overall results to check if the probable opinion of non respondents differed at all from early respondents. There were no identifiable differences between early and late respondents and certainly none that were statistically significant.

Tentative conclusions can therefore be drawn that non respondents were not of a particular opinion or attitude group and non response, although not random, did not bias the sample to the extent of invalidating the results. The only possible area for caution is applying the results of small firms to the population of small firms due to the low response rate.

4.2 Survey results - General information

The following sections describe the results of the survey research, the aims and objectives of which were examined above. Each heading investigates a separate topic and begins with an introduction followed by results and finally conclusions. The main body of the thesis includes tables, graphs and statistical analyses, where deemed appropriate, with less important analysis appearing in the appendices. Included in this section is general information such as response rates, computer literacy analysis and personal data which examines the profile of respondents.

4.2.1 Response rates

498 questionnaires were distributed throughout the four areas, in most cases to named respondents. Follow up telephone calls identified postal wastage as 10%, this is extremely high and may be because surveyors claimed they did not receive the questionnaire when they had just not completed it. A similar figure was discovered applicable for firms not producing office valuations on a regular basis and deciding that the questionnaire was therefore not relevant to them once they had read it. Follow up questionnaire were posted to those that were discovered not to have received the questionnaire in the first place so 450 responses

would therefore have resulted in a 100% response rate. The total number of usable responses received was 138 which can be broken down as follows.

Table 4.1 Responses per area.

	London	**Birmingham**	**Leeds**	**Newcastle**	**Total**
Number of responses	71	29	26	12	138
% age of responses	51	21	19	9	100%
Response rate	22%	60%	55%	67%	31%

A total response rate of 31% is reasonable when compared to other surveys of similar populations with the surveying profession.(For example Harvard 1995) It was only the London section of the survey which caused the response rate to fall below 40% and this was probably due to the high number of small firms within London containing only one or two surveyors with limited spare time.

The breakdown of responses within each particular firm size is shown in table 4.2.

Table 4.2. Responses per firm size and firm size per area.

	National	**Regional**	**Local**	**Total**
Responses (n)	65	21	52	138
Percentage (%)	47%	15%	38%	100%
London	51%	10%	39%	100%
Birmingham	52%	26%	22%	100%
Leeds	50%	8%	42%	100%
Newcastle	8%	42%	50%	100%

From the table it is clear that the responses may not be entirely representative of the population as the sample is made up of a greater proportion of nationally based firms than

locally based firms when in reality the population is dominated in number, especially in London, by locally based firms. However, there are sufficient numbers of locally based respondents to draw conclusions on the attitudes of the group and the spread of respondents is varied enough not to devalue the survey.

4.2.2 Respondents' profile

The opening section of the questionnaire aimed to construct profiles of the respondents by obtaining information such as age, qualifications and position within their firm.

Figure 4.1

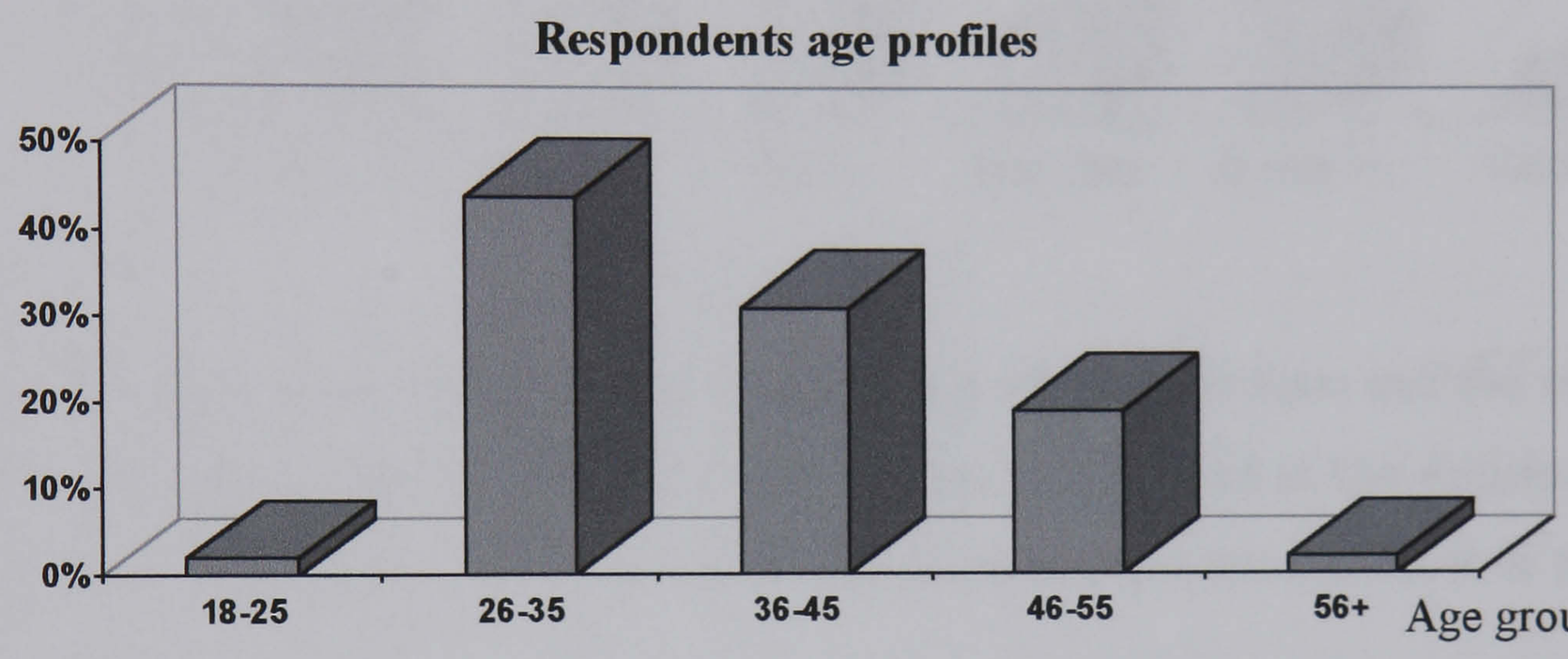


Figure 4.1 shows the age profiles of the respondents. Responses were spread over all age ranges but with the vast majority in the three middle brackets.

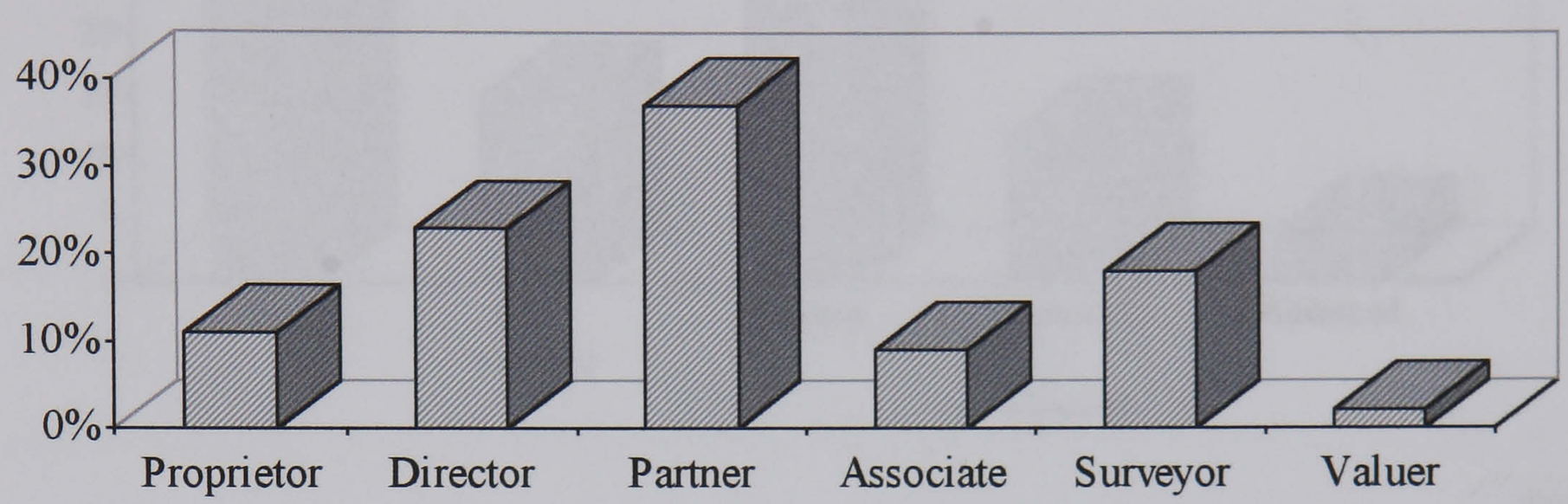
Table 4.3. Respondents qualifications.

Qualification	FRICS	ARICS	ISVA	BSc.	None	Missing	Total
Respondents (n)	46	77	3	5	2	5	138
Percentage (%)	33	56	2	4	1	4	100

Table 4.3 shows the surveying qualifications of respondents with 89% being RICS qualified reflecting a high level of professional experience, expertise and knowledge among the

responses. In this question if respondents ticked more than one box their highest qualification was recorded.

Figure 4.2

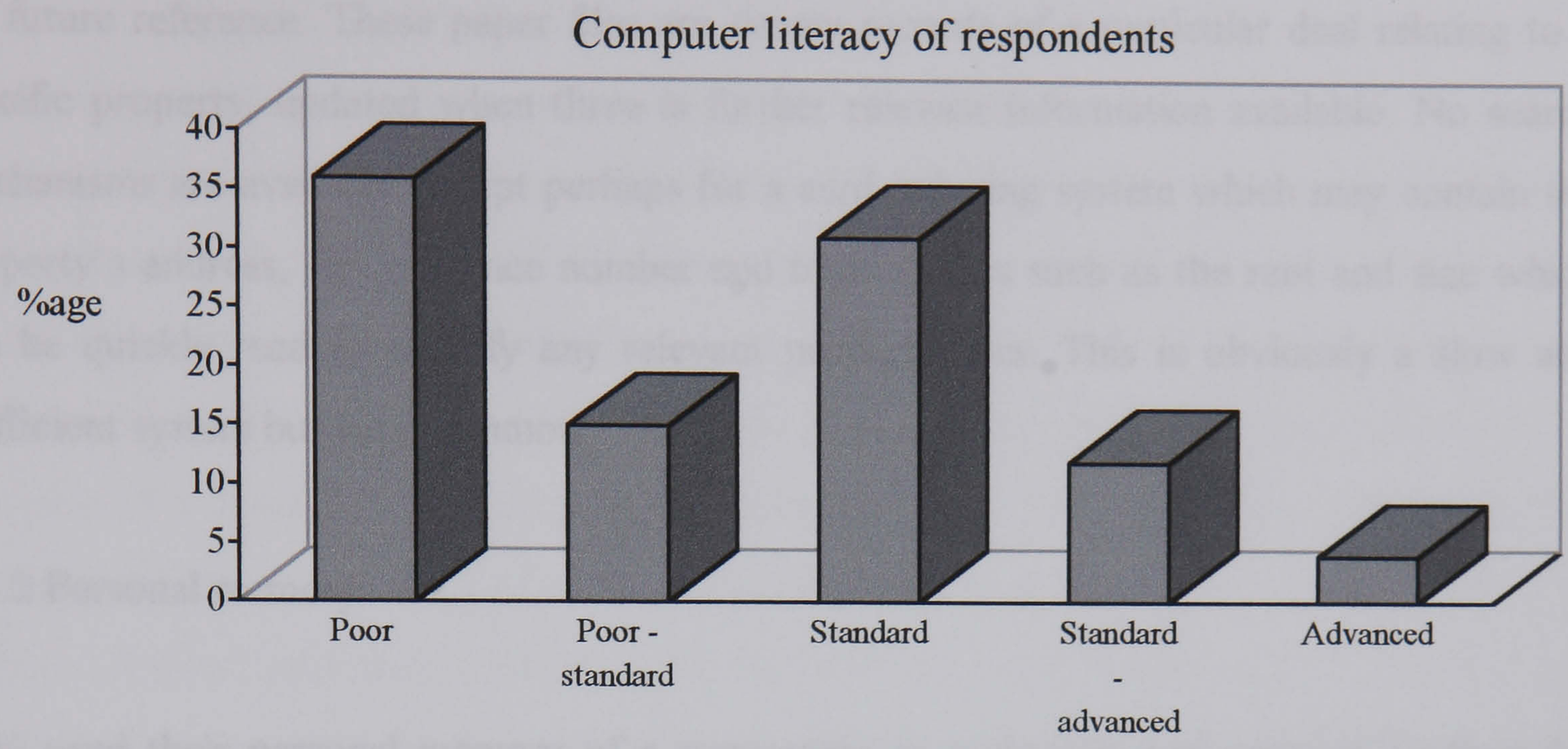


The survey examined the position of the respondents within their firms and the results are shown graphically in figure 4.2. 80% of respondents are involved in the decision making process of their particular firm so the survey can claim to represent the decision makers in the profession.

4.2.3 Computer literacy

Respondents were questioned about their perceived levels of computer literacy. They allocated themselves a computer literacy rating on a five point scale, explained to respondents, between 'Poor' and 'Advanced'. The questionnaire defined the standard rating of computer literacy as word processing skills with a basic knowledge of spreadsheets. The resulting mean rating was between Poor and Standard with the full results shown in figure 4.3.

Figure 4.3



Only 16% of respondents rated their computer literacy above standard. 51% had a computer literacy level below standard, 35% of which had no computer knowledge at all, identified by a rating of poor. With the profession becoming increasingly technical and new innovations in communications occurring all the time, the level of computer literacy among the respondents is particularly worrying. Computer literacy ratings were examined in relation to age categories providing a perfectly negative correlation between age groupings and computer literacy, that is as the age group increased computer literacy decreased. This indicates that computer literacy in the profession is increasing although from a low starting base.

4.3 Current methods used to record comparable data.

Semi-structured interviews identified four different methods of recording comparable evidence. Respondents were given a list of these four methods and asked to select those commonly used by their firm to record comparable details. The four different methods and the results are as follows:

4.3.1 Paper records.

94% of respondents used paper records and files to record and store comparable evidence for future reference. These paper files are simply records of a particular deal relating to a specific property, updated when there is further relevant information available. No search mechanisms are available except perhaps for a card indexing system which may contain the property's address, file reference number and basic details such as the rent and size which can be quickly read to identify any relevant property files. This is obviously a slow and inefficient system but very common.

4.3.2 Personal memory

69% used their personal memory of a transaction as a storage and retrieval medium for comparable evidence although it can be argued that this method is susceptible to inaccuracies and errors and is difficult to defend in court. All respondents backed up their personal memory with another storage medium.

4.3.3 Card index files.

26% of respondents utilised this method of storing basic property details but always in conjunction with another storage mechanism

4.3.4 Computerised comparable databases.

54% of respondents used a computerised database management system to store and retrieve their comparable evidence. With 94% using paper records it is clear that computerised systems are used in conjunction with paper files. The common procedure in such circumstances, identified during pilot work, is to use the computerised system to identify possible comparables. The computerised record provides basic comparable details and includes the location of the paper file permitting the valuer to retrieve this paper file to examine further transaction details.

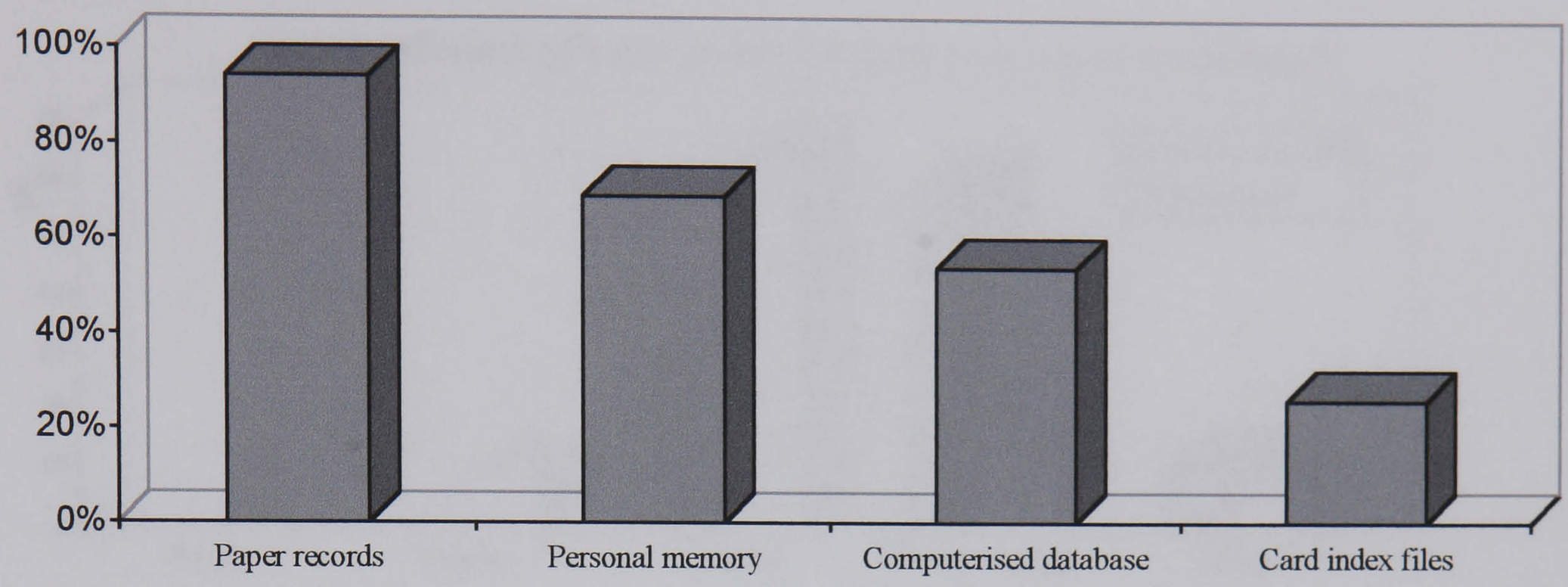
4.3.5 Analysis

Chi square analysis was applied to identify if there was any relationship between the size of the firm and the existence of a computerised comparable database system with the null hypothesis being that the size of the firm has no influence on the existence of a computerised comparable database. The critical value of the chi square statistic was significant at the 1% level indicating that the larger the size of the firm then the greater the probability of the presence of a computerised comparable database system. This is hardly surprising as the development and maintenance of a computerised system is an expensive and time consuming process so small, and many medium sized, firms do not have the resources to develop and maintain such a system or they do not have enough data to make a system worthwhile. Another interesting, statistically significant, relationship is that between the computer literacy of the respondent and the existence of a computerised comparable database within that respondents firm. The existence of a computerised database was generally combined with a standard or higher computer literacy rating indicating either that this database promotes computer literacy or computer literate respondents have encouraged the use of, or implemented, such a system.

The results are illustrated graphically in figure 4.4

Figure 4.4

Methods used to record comparable data.



4.4 Current valuation data usage

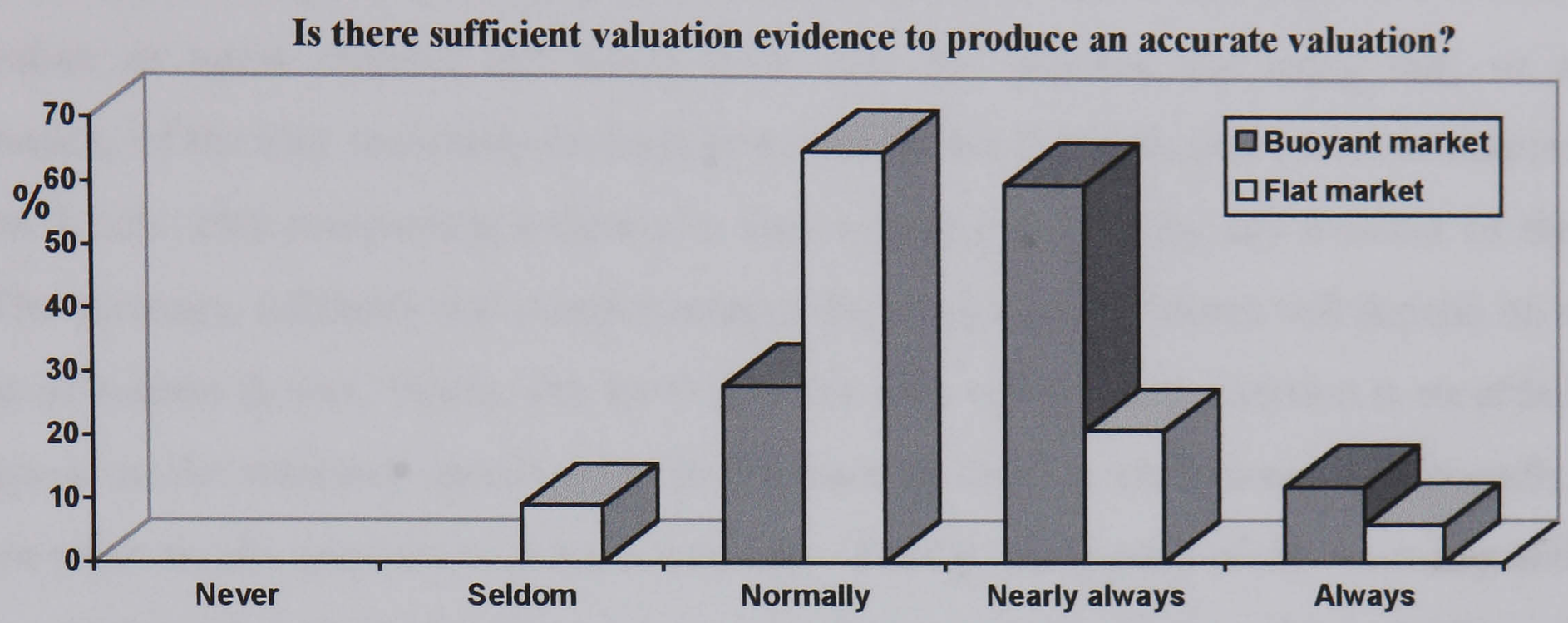
This section examines, firstly, the availability of valuation data in the office property market and, secondly, the sources from which valuers obtain the evidence they use for the production of a valuation.

4.4.1 Valuation accuracy and data availability

Respondents were asked to define what they thought constituted an accurate valuation. They were given three choices. Did they perceive an open market valuation as accurate if it fell within 5, 10 or 20% of the realised sales price or negotiated full rental value? 35% thought a valuation was accurate if it fell within 5% of the realised sales price or full rental value while 64% thought within 10% was a reasonable margin. This tends to support the opinion of the courts (see section 2.6.1) although it is likely that respondents were aware of the views of the court and this influenced their own opinion. Respondents then had to decide whether the quantity of valuation evidence was sufficient to produce an accurate valuation. They were asked to state if sufficient valuation evidence was available always, nearly always,

normally, seldom or never, firstly in a buoyant market and secondly in a flat market. The results are shown below.

Figure 4.5



In a buoyant market valuers were happy with the availability of valuation evidence but this satisfaction with data levels dropped when market conditions were poor. This illustrates the need to increase the availability of comparables, particularly when market conditions are poor and highlights the role a national database could play.

4.4.2 The main sources of valuation evidence

This section examines the sources from which valuers obtain the valuation evidence used in the production of a valuation. Valuers can extract valuation evidence from a variety of sources but pilot work identified the eight most common. From these eight sources the respondents had to identify the three most frequently used with a ranking of one given to the most popular, two for the second most popular and to three for the third most frequent. The eight valuation sources are described below:

- Recorded data resulting from sales, lettings and rent reviews with which the firm has dealt.

A transaction will usually involve two or more surveying firms acting on behalf of the parties to the deal. Once a transaction is complete then the acting valuer or agent knows the details of the transaction, for example the capital price, rental value, lease terms, size and accommodation among others, and can record these details for use as comparable evidence. This valuer or agent records and stores these data for in-house use using one, or a combination, of the four recording methods described earlier in the chapter previous chapter (section 3.2.2). This comparable evidence is then available for use by any member of the firm. The accuracy, reliability and completeness of the comparable evidence will depend on a number of related factors. Firstly; the level of detail with which the transaction is recorded will depend on the standards specified by the firm used by the individual recorder. Secondly; the care taken by the recorder to ensure accuracy. Thirdly; the quality of the recording and storage mechanism and finally; the overall commitment of the firm to the recording of comparable evidence. With accurate recording and a reliable storage and retrieval system it is possible to record the exact details of a transaction and allow the efficient retrieval of these details for future comparable purposes. Within a large firm a substantial database of comparable evidence may be accumulated over time thus providing a reasonably comprehensive source.

- Personal experience and knowledge.

Through dealings in the market place many valuers claim they have a "gut feeling" for rental and capital values and can produce a valuation using solely their experience and knowledge of the market. Comparable evidence is only used to back up this "gut feeling" and not to objectively determine the valuation level. This personal experience and knowledge is used extensively in the absence of sufficient comparable evidence and maybe partially objective or subjective depending upon the knowledge base of the valuer. There is no doubt that personal experience and knowledge is vital for the interpretation of comparable evidence and to identify and quantify market movements but whether it is an accurate "source" of valuation evidence is open to debate.

- Other in-house valuers.

Other in-house valuers will provide further information to back up recorded comparables which perhaps do not provide sufficiently detailed evidence for valuation purposes. It may also be necessary for a valuer to clarify a particularly unusual aspect of a deal, perhaps lease incentives offered by the landlord to secure the tenants occupation. It may also be possible to extract details from a transaction that have not quite been completed or were not recorded for some reason. This source is really only a back up to in-house databases or a source of advice.

- The property press.

Publications such as Chartered Surveyors Monthly and the Estates Gazette report some deals and auction results as well as general market commentary which are sometimes of use as valuation evidence. The news section of the Estates Gazette may report transactions that have recently taken place and may provide the property name, size and capital or rental value. This will provide a valuer with a knowledge of general market levels but is not really of any use as specific comparable evidence as insufficient details are available. Auction results also provide only the skeleton transaction details but do sometimes provide contacts from which to obtain further information. The property press is of optimum benefit in keeping valuers informed of market activity and movements.

- Publicly available databases.

Databases, particularly FOCUS in its many forms, provide on-line information to subscribers. Searches of these databases may provide useful evidence for the valuer. In the case of FOCUS the information available is simply extracted from the property press so is subject to similar limitations as the property press as a valuation evidence source. Pilot work identified that valuers are wary of relying on any evidence that may be useful without checking its accuracy with the original source. These databases provide secondary evidence

useful in identifying demand and supply levels and market observations but are limited when it comes to providing specific comparable evidence.

- Valuation Office Agency Data

Rateable values are available for scrutiny from the Valuation Office, local councils or via FOCUS and provide values for all the rateable hereditaments in the local area. These rateable values are useful for preparing rating appeals and comparing rental levels in specific areas to other areas. However, rateable values are based on a series of assumptions and are only up to date once every five years so are of limited use for comparable evidence. What would be of use from the Valuation Office data are the details of every rateable hereditament that they contain, that is details of the size, accommodation, lease terms and other relevant value factors. It would then be possible to adjust the rateable value to reflect an open market rental value and use this for comparable purposes. This would provide access to a comprehensive comparable database. The release of Valuation Office data has been advocated before and rumours of its impending release have often circulated but there seems little evidence to suggest that Valuation Office data release will occur in the near future (see chapters 6 and 7).

- Agents particulars

Property particulars provide details and characteristics of properties currently on the market. These particulars can provide indications of rental or capital values and levels of supply in the local market but do not provide the market price or rental level of the property so are of limited use as valuation evidence.

- Other valuers within localised firms.

Valuers may contact other agents and valuers within local surveying firms to gather evidence of deals involving those firms. This "data grapevine" works both ways with valuers

supplying information on request and gathering evidence in return from the other party. If a valuer in one firm knows that a valuer in another local firm has dealt with a property that would be suitable as comparable evidence then contact may be made and details of that property supplied. Written confirmation of the evidence is sometimes supplied where the comparable evidence is deemed vital for valuation production to permit subsequent defence if litigation should occur. Pilot work identified that occasionally agreements exist between firms who readily swap data to the exclusion of other firms. The extent to which the data grapevine is used depends upon the firm size and the level of activity in the property market.

4.4.3 Valuation evidence sources - frequency of use

The responses gathered were assembled into a tabular display, shown in table 4.4, identifying the most frequently used sources and which were used as primary evidence, secondary evidence and tertiary evidence. Each source was then allocated a rank which is determined by its weighted percentage. Weighted percentage figures were used to reflect quantitative differences in relation to the importance of valuation evidence sources. When analysing the results to identify the frequency of use of each source it was decided that instead of simply using the total frequency of respondents selecting a source, weightings would be used to reflect the relative importance of each source of evidence. Respondents were given a choice of eight valuation evidence sources and were required to select their three main sources, 1 being the most important source, 2; the second most important and 3; the third most important. Frequency totals were then derived for each source depending on the number that chose the particular source.. This figure was then multiplied by the number of respondents who chose the source as their main evidence by three, the number of respondents who chose the evidence as the second source by two and the number choosing the source as the third source by one and adding these totals to give a weighted total. Converting each weighted total to a percentage allowed the identification of the quantitative difference in importance between each valuation evidence source. For example in-house data has a weighted percentage of 34% compared to 22% for other local valuers indicating a

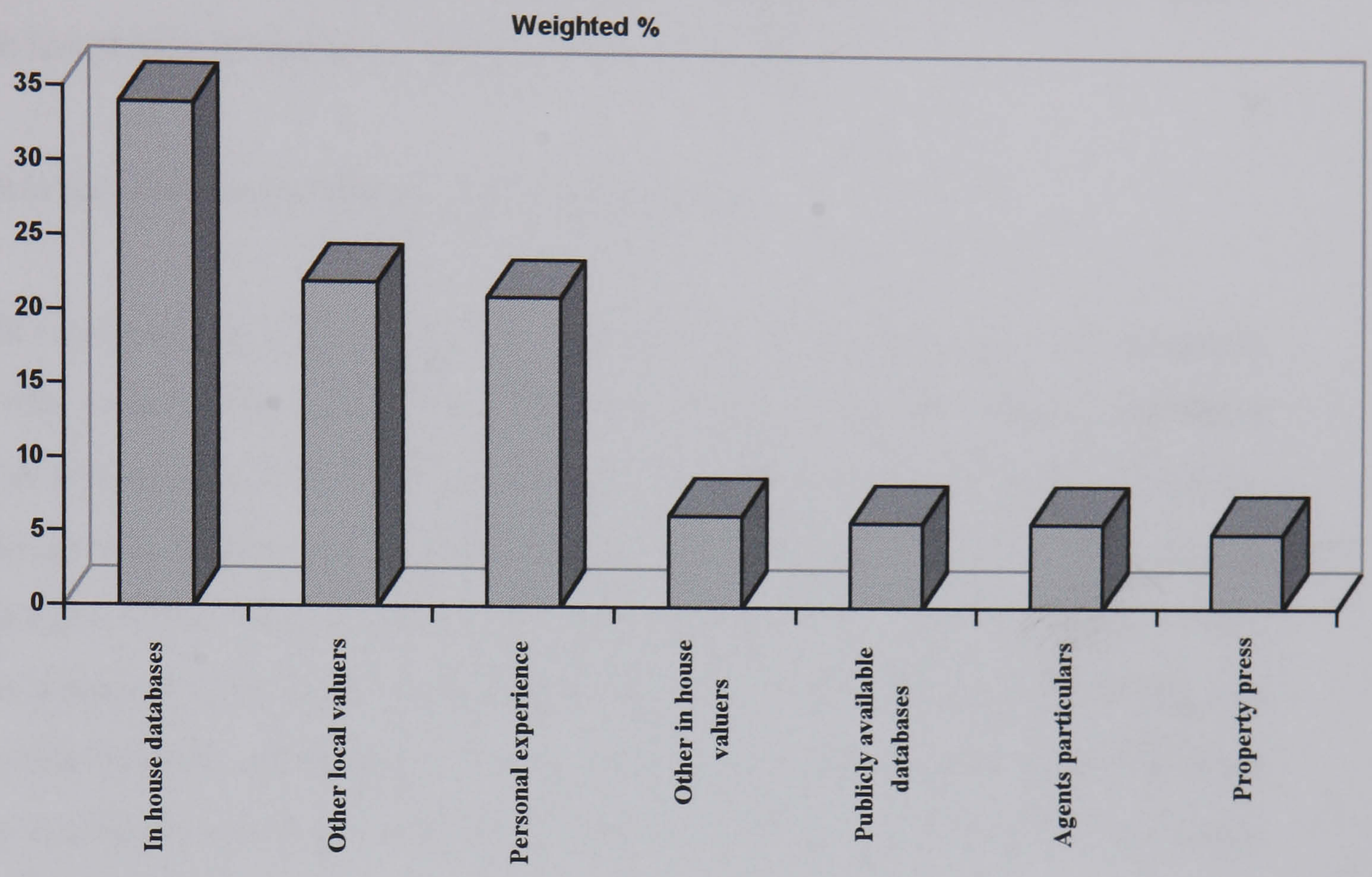
large difference in the perceived importance of each source as valuation evidence. A graphical display of the results is shown in figure 4.6.

Table 4.4 .Frequency ranks of valuation evidence

	First source	**Second source**	**Third source**	**Total**	**Weighted percentage**	**Rank**
Firms own data	75	16	9	100	33.92%	1
Other localised valuers	23	33	38	94	22.07%	2
Personal experience	26	35	16	77	20.92%	3
Other in-house valuers	1	14	18	33	6.25%	4
Publicly available databases	0	17	12	29	5.87%	5
Agents particulars	2	10	19	31	5.74%	6
Property press	4	6	16	26	5.10%	7
VO data	0	0	1	1	0.01%	8

Figure 4.6

The relative importance of valuation evidence sources



From table 4.4 and figure 4.6 it is identifiable that the most frequently used source of valuation evidence are data resulting from the firms own sales and lettings. Although the total response frequency between this and the second source is small, the quantitative difference when the importance of the source is reflected is around 30%. The secondary source were data obtained via the 'data grapevine' so direct knowledge of comparables are therefore the most important sources of evidence. Personal knowledge built up over time was third with the remaining sources way behind on the scale of importance. The results suggest valuers, when searching for comparable evidence, will firstly consult their in-house database, if they have one, and if the firm does not contain a sufficient number of high quality comparables then local a valuer will contact other local valuers. Added to these sources is the valuer's experience and knowledge which provides an indication of market levels and possible future market movements. Consultation of the remaining valuation

evidence sources occurs if the first three sources do not provide sufficient evidence or if valuers require background information on a market sector or current market trends. In-house data are therefore extremely important for the valuer so it would be prudent to record, store and allow the retrieval of valuation evidence in an efficient and comprehensive manner. This research has identified However, that this is rarely the case.

4.4.4 The accuracy and completeness of valuation evidence

Following the identification of the most frequently used valuation sources it was necessary to examine why certain sources are utilised more than others. This was achieved by asking respondents to rate the 'accuracy' and 'quality and completeness' of their top three sources. Accuracy ratings investigated how confident respondents were that the source was reliable and contained no factual errors. The ratings allocated were also used to identify which sources were perceived as accurate and which were in need of improvements. Ratings of 'quality and completeness' were designed to examine how confident respondents were that the particular evidence source provided all the necessary information required by the valuer for the production of a valuation.

Five ratings were available for the respondent to choose from, so that a neutral mid point was available for the respondent. The ranks available were 'Very poor', 'Poor', 'Average', 'Good' and 'Very good'. 'Very poor' was assigned a value of 1 up to 'very good' with a value of 5. Each respondent's rating of the particular source was assembled deriving the mean rating of accuracy and quality and completeness. The higher the mean value then the higher the perceived rating of accuracy or quality that were given to the evidence source. Figure 4.7 shows the ratings of accuracy and quality and completeness for each valuation evidence source. Detailed tables of results are shown in appendix D and describe the frequency ranks and mean ratings of each valuation source in terms of both accuracy and quality and completeness.

Figure 4.7

The accuracy and quality and completeness ratings for each data source.

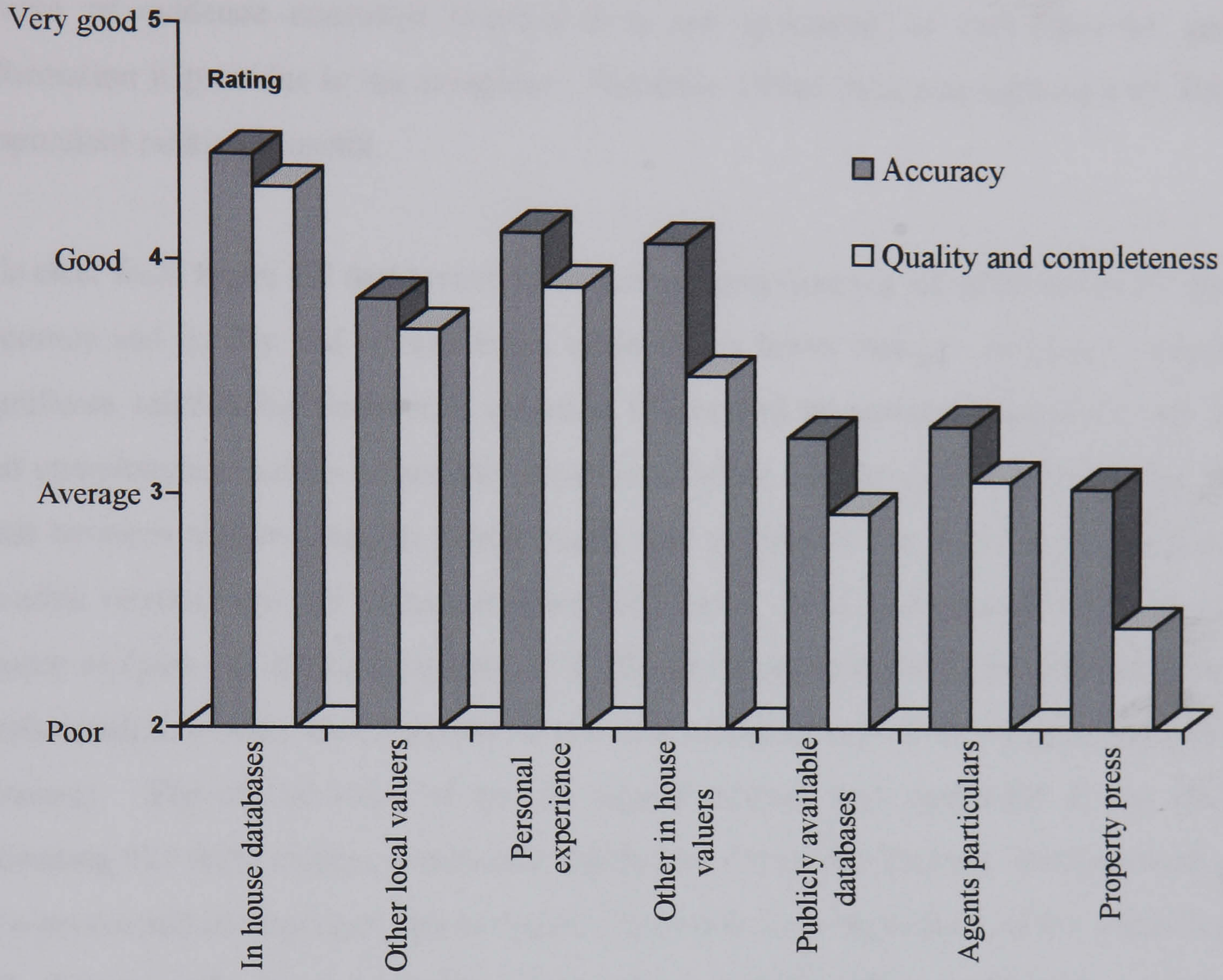


Figure 4.7 shows that firm's in-house records achieve the highest rank in terms of both accuracy and quality and completeness. It is therefore not surprising that this was the most frequently used source of valuation evidence. The accuracy and quality and completeness of evidence recalled from personal experience was regarded as just behind that of firms own recorded data. In-house valuers provided the third most accurate source of data but the quality and completeness of these data were regarded less favourably than those of other valuers in local firms. Although the quality and completeness of local valuer's evidence was third its accuracy was only believed to be fourth, indicating that evidence supplied by local valuers is often regarded with some suspicion. Agents particulars were ranked fifth for both quality and completeness and accuracy indicating that it is only used as a back up source.

Publicly available databases were ranked sixth for both variables indicating a wariness to rely on the evidence presented in these databases other than for supplementary evidence. The final source of evidence, the property press, was ranked lowest of all indicating it is the last source of evidence consulted because it is not perceived as very accurate and the information it provides is not complete. Valuation Office data was omitted with only one respondent ranking it useful.

It is clear from figure 4.7 that certain valuation evidence sources are allocated high ratings of accuracy and quality and completeness while others lower ratings. Is there a statistically significant relationship between a valuation source and its perceived accuracy and quality and completeness ratings or are the responses random and the relationship that appears to exist between a source and its rating purely due to chance? In order to investigate these possible relationships chi square analyses was used. (The contingency tables for all chi square analyses are shown in appendix E) The first analysis investigated whether there was a relationship between the frequency of use of a valuation source and its perceived rating of accuracy. The critical value of the chi square analysis was significant at the 1% level indicating that there exists a statistically significant relationship between the frequency of use of a source and its accuracy, this is clearly observable from the pattern of the graph in figure 4.7. For example, for data resulting from sales and lettings dealt with by the valuer's own firm there were a high proportion of very good responses for accuracy ratings compared to the number expected if responses were purely random. This is why the relationship is statistically significant.

Similar analysis was undertaken and similar results observed in relation to the frequency of use and quality and completeness ratings. There is a statistically significant relationship between the frequency of use of a particular valuation evidence source and its associated rating of quality and completeness.

By comparing the ratings of accuracy and quality and completeness it is possible to identify that ratings of quality and completeness are lower in every case than those for accuracy. It

can be concluded from this observation that respondents are slightly more confident in the accuracy of valuation evidence sources than they are of the quality and completeness of those sources. The ratings given for accuracy of in-house data are encouraging for the long term aim of data release and pooling. If existing data sources are accurate then there should prove few problems when combining these data into an accurate national database.

Further investigation examined the correlation between the rank given to the frequency of use of a source and its rankings of accuracy and quality and completeness. Spearmans rank correlation coefficients were calculated for the data and the following results obtained.

Table 4.5 Correlation between frequency ranks, accuracy ranks and quality and completeness ranks

Rank of accuracy	0.8571 Sig 0.007	
Rank of quality and completeness	0.9286 Sig 0.001	0.9643 Sig 0.000
	Frequency rank	**Rank of accuracy**

The correlation coefficients indicate a strong positive relationship, significant at the 1% level, between all three variables. The strongest correlation, almost perfect, is the relationship between accuracy and quality and completeness rankings. This suggests that the greater the accuracy of an evidence source then the greater the associated quality and completeness of the evidence, and vice versa. The strong, statistically significant, relationship between the frequency of use of a particular source and the rankings of accuracy and quality and completeness suggest that the greater the accuracy and quality and completeness of a valuation evidence source then the greater the frequency of use. Similarly, it could be the case that because a particular valuation source is utilised more often than another, care is taken in the recording of data to ensure it is accurate and the information complete. Data recorded in-house are the most frequently used evidence and

this is perhaps because the accuracy and the quality and completeness of the evidence is easily checked. Evidence which cannot be checked, for example the property press, is regarded with suspicion as it is unlikely that a valuer could identify information which could be inaccurate and incomplete. Relying on this evidence could prove dangerous, consequently such sources are not often used to provide primary evidence.

4.4.5 Final analysis

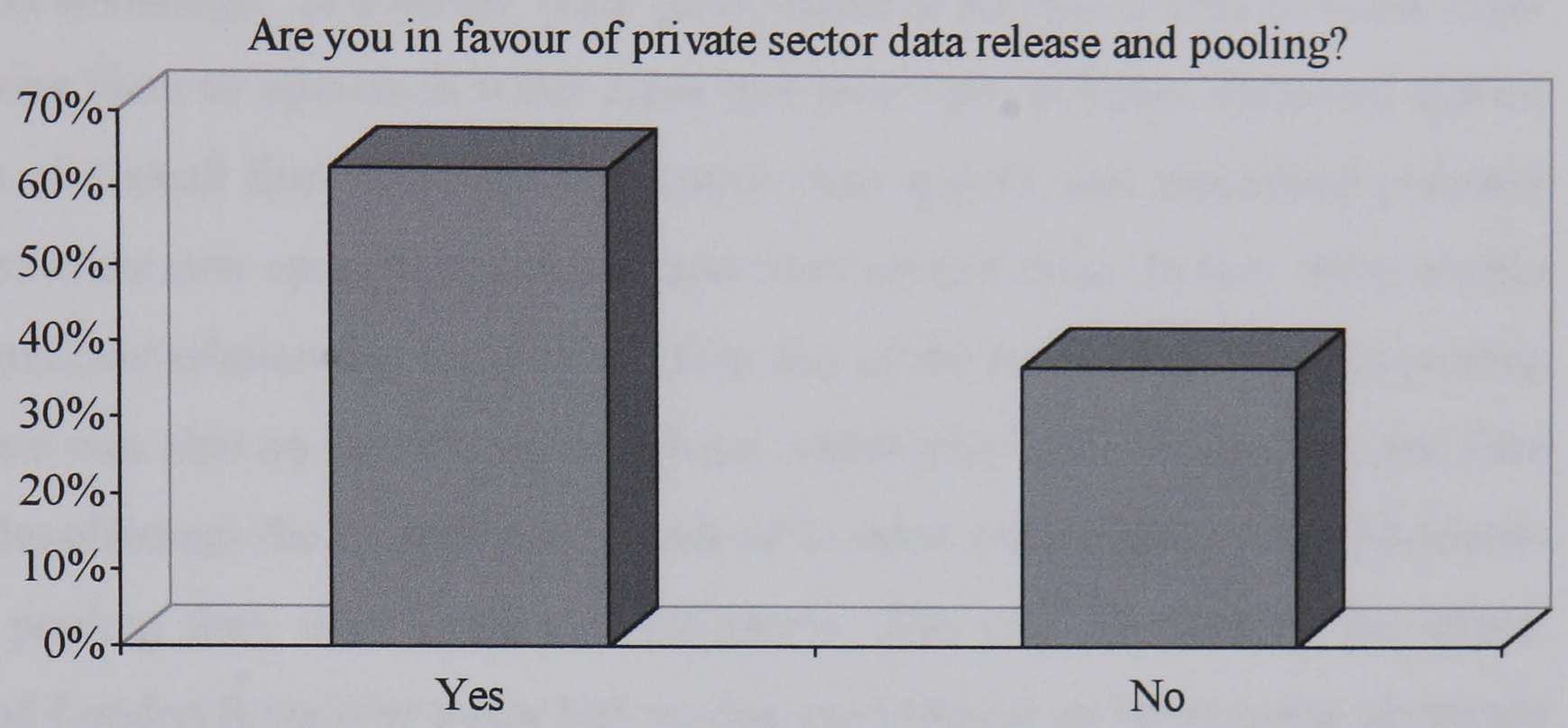
The most widely utilised source of valuation evidence comes from data resulting from sales and lettings with which the valuer's own firm has dealt. There is a relationship between this source and high ratings of accuracy and quality and completeness and there is also a correlation between the frequency of use of a source and its accuracy and quality so not surprisingly the most popular source of evidence is regarded as the most accurate and complete. The lower the accuracy and completeness ratings given by respondents to the sources then the lower the frequency of use therefore, logically, improving the accuracy and completeness of a source should lead to an increased use of the evidence benefiting the efficiency and reliability of valuations. Combining in-house databases, the accuracy of which are considered as good or better by 70% of respondents, to produce a national database would be of benefit to the profession. There is room to improve the quality and completeness of in-house evidence with just over 50% believing it good or better and this is where the introduction of valuation data recording standards would add to the effectiveness of a national system. This idea will be developed later in the thesis.

4.5 Attitudes to data release and pooling.

The development and subsequent success of any national valuation evidence database relies on the private embracing the concept of data release and data pooling. When asked whether they were in favour of the concept of private sector data release and pooling 63% of respondents replied they were with the remaining 37% against. This is encouraging with almost two thirds in favour of data release without any education of respondents as to the

advantages, or disadvantages, of such a concept. For a national database to operate efficiently the large majority of valuers, or it least those with the decision making powers within a firm, would have to be in favour of data release so there is clearly some way to go.

Figure 4.8



4.5.1 The Relationship between data pooling attitudes and other variables

It was thought necessary to investigate the profile of the respondents who were in favour of data release and pooling in terms of their computer literacy and their firm's size. This would then identify those areas of the profession in most need of persuasion to release and pool data. Firstly came the examination of the relationship with computer literacy. Chi square analysis was used (the contingency table is shown in appendix E) and showed a critical value significant at the 1% level indicating a real relationship between those with a higher level of computer literacy and favourable attitudes towards data release and pooling.

This perhaps indicates that computer literate respondents have a forward looking attitude towards technical initiatives in comparison to non literate respondents as perhaps they are better able to anticipate the potential benefits. Computer literacy levels will steadily increase over time and so, based on the results to date, will the proportion of valuers in favour of data release and pooling. There is surprisingly, however, no statistically significant relationship between age and attitudes to data pooling.

It was tentatively accepted that respondents represented the attitudes of valuers working in a particular location and firm size in order to test relationships between location, firm size and other variables. Larger firms were expected to be against data pooling because they hold large data sets and allowing all firms access to these would result in a loss of a previously held information advantage. In addition, small firms would be allowed access to much larger data sets allowing them to operate in wider areas that previously possible. Balanced against this is the loss of a small firm's information control over specific and specialised property types with these areas now opened up to larger and other smaller firms. In fact, there was no statistically significant relationship between the firm size of the respondent and data pooling attitudes. There was also no statistically significant relationship between location and data pooling attitudes although the respondents outside of London were slightly less enthusiastic towards data pooling than their London counterparts. This may be because the larger, nationally based London firms who might believe that even though an information advantage is lost in London, gaining access to data throughout the country will increase their ability to operate in a wider market area.

4.6 Other comments of respondents

At the end of the questionnaire valuers were invited to provide any comments they thought relevant concerning the issues of data availability and data release and pooling. Only 27 respondents chose to provide further comments and below are some of the responses.

"Surveyors will be very reluctant to contribute to a comparable database. All the information will never be trusted and therefore treated with suspicion."

" Only a completely accurate, reliable and admissible database would be of any use. Anything less could only serve as a useful source of lines of enquiry."

" 1. Who's going to pay me for supplying information?

2. It's only as good as the accuracy of the information. Who pays for inaccuracy?"

"Whilst improving data availability in the market I believe that London or national firms would be able to extend their area of operation beyond the current geographical boundaries which would be detrimental to local firms but which would not improve the service to clients."

"It will not work. Individuals and especially large firms have difficulty recording accurate comparables in-house never mind for others to use."

"Any improvements in the provision of data will improve the valuation process but not necessarily the quality or accuracy of the end product."

"Small/regional firms may resist on grounds of protecting their "own" data but I don't view that as a real problem. Firms with local expertise and knowledge will always have that advantage, regardless of access to raw data."

"If it was accurate, reliable and comprehensive a NVED would considerably reduce inefficiencies and shortcomings in terms of data availability. The valuation process would then depend far more on the knowledge, skill and experience of a valuer rather than on his ability to find comparables."

These comments echo the wide variety of views encountered during the survey and ask questions that require further research in order to provide comprehensive answers, for example how will surveyors be persuaded to record comparable data? Most of the issues, particularly those relating to a national database, are addressed during the remainder of the thesis. Some responses are encouraging while others are negative but this is the ultimate aim of survey research to examine as wide a range of views as possible. One last comment seems to sum up the aim of data release and pooling and the views of the majority of respondents.

"The profession has attracted significant adverse publicity to the detriment of all members and needs to make positive improvements to the quality and accuracy of advice, which only an open comparable system can provide. The profession, as a whole, would benefit by positive improvement of comparable data information. The valuers skill should be confined to analysis and interpretation."

4.7 Problems of the survey research.

The questionnaire structure, questions and instructions were kept as short and as simple as possible in order to reduce completion time but a small number of respondents still failed to complete the questionnaire properly, perhaps as a result of trying to finish it too quickly. For example, when asked to rank, in order, the top three responses a few respondents just ticked those options that they considered relevant rendering coding impossible. The occasional respondent missed out an entire page and some missed out whole questions perhaps because they did not understand them and in such cases only data from completed questions was used.

Some questions were designed to investigate how attitudes changed throughout the questionnaire particularly after the list of advantages and disadvantages of a NVED were explained as part of a question (see chapter 6). 63% were in favour of data release and pooling but 78% thought a NVED would improve the valuation process. 15% either changed their attitude or were not in favour of improving the profession through data release and pooling because they thought it would be detrimental to their firm. This example of possible attitude change highlights the possibility and problems of contradictions. By the end of the questionnaire a respondent may be in favour of data release and pooling but had answered no in the previous question and did not go back and change it. In this circumstance maybe the question should have been repeated again at the end of the questionnaire.

It is not certain that all respondents understood what was meant by the term 'data release and pooling'. Although this was explained briefly in the covering letter along with other concepts such as a that of the NVED maybe it was necessary to explain it in more detail along with its advantages and disadvantages. The occasional respondent also seemed confused about the questionnaire subject although it was continually emphasised that the survey was concerned only with the valuation of office property.

The level of postal wastage was also of some concern. Non responses were followed up by telephone calls and, in many cases, it appeared that the target respondent had not received the original questionnaire. This may have been the fault of the internal postage system of the University, the external postal service or respondents being flexible with the truth and had, in fact, received but not completed the original questionnaire. This is one major problem of postal questionnaires that is difficult to overcome unless all questionnaire are delivered by hand.

A significant question remains as to whether the sample drawn form the population was representative of the population as a whole and the responses received reflected the sample profile. The sample description was given earlier in the chapter. With limited time and resources available, as with any survey, covering the whole population was impossible, a sample was therefore essential. Covering all firms in one city centre area rendered unnecessary the requirement of a sample within that city therefore reducing sampling error. The choice of respondent within a firm was limited in the case of small firms and the smaller regional firms as usually there was only the one individual who dealt with office valuations. The questionnaire targeted the most active office valuer within national firms because of that valuer's current knowledge and experience in data availability and quality issues. Valuer selection again had the effect of reducing sampling error.

The coverage of valuation firms in the city and the valuer within each firm was legitimate but was the selection of the four cities representative of the country's PPSP? The target number of questionnaires to be sent was 500, a number reflecting time and resources available.

London had to be included as the centre of the country's office market and the fact that it is dominated by all the national firms and an extremely large number of small firms and this required coverage by 300 questionnaires. The 200 remaining limited the choice of the number of cities that could be chosen if they were to be comprehensively covered. The three finally chosen were selected to represent differing markets in differing areas. Rural areas were excluded because of the difficulty in identifying firms and the lack of national firms within those areas. Given the time and resources constraints, the sample was as legitimate and as representative of the population as possible.

The responses from each type of firm, however, did not reflect the number of firms in each location. This was due to the non response rate, particularly among smaller firms. It is accepted that many smaller practices have few staff, one or maybe two in many cases, and so have limited spare time available. The lack of responses from small firms in London lowered the overall response rate. From the entries in the Estates Gazette directory, London is dominated in number by small firms and 70% of questionnaires sent out in the area were to smaller firms but only 39% of the total responses in London were from this firm type. Other areas had lower proportions of small firms but response rates from those areas were relatively good. Response rates from national firms were encouraging indicating the interest such firms have in the issue of data release and pooling. Examining response rates indicates that there were sufficient responses in each category to use inferential statistics to draw conclusions as to the attitudes of respondent groups but there were few statistically significant relationships between firm size and other variables making any problems in drawing conclusion concerning the respondent group to the whole population largely academic. The responses provide a legitimate commentary on the views of the valuation profession and, to that extent, it is valid to draw conclusions from the results.

4.8 Summary

This chapter examined in detail the aims and objectives of the main valuer survey used to collect data concerning valuation data availability, attitudes to data release and pooling and

reaction to the concept of a national evidence database. The chapter also described the survey population, the sample taken from the population and the survey implementation. The problems of sample identification and non respondents were also discussed and it was determined that the survey produced valid results, applicable to the whole profession.

In sections 4.2 onwards the results from the office valuation data section of the survey were discussed. The main source of valuation evidence was derived from in-house databases and paper files, the accuracy of which were described as good or better. This bodes well for the creation of any national database from existing comparable systems. 63% of respondents were in favour of data release and pooling indicating that, although encouraging, there is some way to go before a national database of valuation evidence can be created through voluntary agreements.

The survey research was a successful attempt to gauge the reaction of the valuation profession to the concept of data release and pooling and also to examine current data availability. The response rate was reasonable and those that did respond were nearly all RICS qualified and held a decision making position within their firm. The survey discovered that sufficient evidence was nearly always or always available for the production of an accurate valuation in a buoyant market but this was not the case in a flat market. A normal market would expect data availability to fall somewhere between the two extremes so some improvement in data availability is necessary.

The in-house data of a firm were the main source of valuation evidence and their accuracy and quality and completeness were perceived to be between good and very good. This is encouraging for data pooling as if existing sources are considered accurate then a combination of these databases should produce an accurate national database. Approximately half of the firms questioned used a computerised comparable database system to record their in-house data and the presence of such a system was related to the size of the respondents firm. Computer literacy levels in the profession were generally low, although they are expected to have improved substantially in the past two years, and there is

evidence to suggest that the existence of a computerised system helps to improve computer literacy levels within a firm although this is almost certainly linked to the overall IT policy of the firm.

63% of respondents were in favour of data release and pooling, an encouraging result but there is still a long way to go before the concept becomes reality. There was an interesting relationship between higher than average computer literacy levels and a favourable attitude towards data release and pooling, perhaps indicating that support for the concept will grow rapidly during the next few years.

The results are extremely useful and provide good background information into the use of valuation evidence. They suggest that a national database will provide the main source of valuation evidence and will provide increased data availability, necessary in all but the most buoyant market conditions. The following chapter investigates the second section of the questionnaire: attitudes towards a NVED, and the conclusions in that chapter link the two sections of results.

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Chapter 5 Private sector data release and pooling

5.0 Introduction

This chapter examines the concepts of private sector data release and data pooling. Data release and pooling on a national scale requires all firms which collect and store property data to allow open access to their data from a single access point. All surveyors would then be permitted access to this data for use in the production of property valuations and other typical surveying tasks. Alternatively, data release and pooling could occur on a smaller scale via agreements between a number of firms with surveyors of each participating firm permitted access to these data.

Attitudes have changed in relation to data release and pooling in recent years (Estates Gazette 1993a, Adair et al 1997). The Mallinson report (RICS 1994) advocated data release and the development of nationally accessible databases with the RICS policy towards land and property information also encouraging both the exchange of information and initiatives aimed at improving the availability and accessibility of data. The RICS, however, stop short of recommending any positive action (RICS 1997). Survey research within this project identified that 63% of respondents were in favour of data release and pooling, a figure assumed to be a lot lower five or more years ago. This is encouraging but for data release to occur voluntarily this figure must increase significantly.

The following sections investigate why there are problems releasing valuation data into a nationally accessible data pool. These barriers to data release and pooling are described in detail followed by the results of survey research which investigated the relative importance of each barrier. The relationships between firm size, location and perceived barriers to data release are also discussed. However, first is an outline of the theoretical advantages of releasing and pooling private sector data.

5.1 Advantages of private sector data release and pooling.

This section discusses the advantages of releasing and pooling private sector data and permitting the surveyors of each firm participating in the data sharing scheme access to these data. Particular emphasis is applied to the release and combination of comparable evidence held in computerised databases and paper files, the main purpose of which is for the production of valuations. Releasing data is a more complicated action than simply saying "anyone can come into the office and examine our data files." For data release to be beneficial to the whole profession then the concept of data release must be accompanied by that of data pooling. Without a framework or mechanism by which previously inaccessible data become readily available there is little advantage releasing data.

The large majority of firms maintain databases designed to record deals within which they were involved, be them computerised or paper based. This is the raw data. Many firms undertake some aggregation of these data to produce reports, trends and statistics which are available in-house and often published by many of the larger practices. Firms also collect and assimilate data from published sources, for example the property press or reports by other surveying practices, or pick out evidence from on-line data sources such as FOCUS or possibly surveying practices' web pages. This information is made available to its surveyors, either through the library of the firm or subscription to the on-line service. It is not necessary to establish a framework for such relevant published data as this data is readily available to all firms. It is data unique to each firm, the data they have collected in the form of comparable evidence, that needs to be made nationally accessible.

If data were released into the public domain, that is made available for scrutiny by surveyors outside the firm, it would be impractical and inefficient to continue to hold data on disparate computerised systems within each surveying firm. Even if computerised database systems were networked and made accessible, probably via the internet, this would still prove inefficient mainly because it would take too long to search each site for relevant evidence (for a full discussion see chapter 6). The user would need to search each individual database

using relevant search criteria, the form of which would differ for each system, and gradually assemble evidence. Not only would the time and expense of locating and accessing many different systems be immense, but the requirement for training to familiarise surveyors with the use of each individual system would further add to this expense. A comprehensive search for comparable evidence would be impossible given the above scenario, thereby weakening one of the major benefits of data release, that of improving the efficiency of comparable evidence data collection. Recording and storing property data, notably valuation evidence, into a single, networked system is the logical and most efficient method of allowing access to these previously secret data. (See section 6.4.3) Only if the pooling of data were possible in such a manner could the property service profession realise the five perceivable benefits of data release and pooling. These five benefits are:

- The Reduction of duplication in the collection and analysis of data.
- The improvement of data recording and management techniques and the promotion and adoption of profession wide data standards.
- The formation of specialist market analysis firms and departments within large PPSP.
- An increase in competition within the property profession based upon quality of service.
- An improvement in the quality of the valuation process.

These are now examined in turn.

5.1.1 The Reduction of duplication in the collection and analysis of data.

Many firms collect similar data and produce, from this data, similar trends and statistics, although there seem to be variances between trends and statistics produced by different practices or organisations. Research publications by major surveying practices, Jones Lang Wootton, Chestertons, Richard Ellis for example, are usually published quarterly and tend to report similar information produced from similar data, although such data are collected separately. Research interviews during pilot work discovered that firms recognised this duplication of resources and wished to implement a strategy to avoid such data duplication.

If data were released there would be no need for individual organisations to collect similar data and produce similar trends. Firms could continue to collect data but standardise such data and produce a single set of trends and statistics from a significantly larger data set, increasing accuracy. Alternatively, an independent organisation such as IPD could collect such data and publish the resulting information, accessible for a fee. The resources saved through the removal of such data duplication could be used to improve the profession in other ways or employing the research department in more specialist tasks.

In terms of comparable data, at least two surveying firms are involved in a particular transaction and hence record that data in their in-house databases. With a nationally based system incorporating appropriate recording standards, it would require only one of the parties involved, for example the vendor/landlord, to record the data reducing data duplication. (See chapter 6)

5.1.2 The improvement of data recording and management techniques and the promotion and adoption of profession wide data standards.

The computerised recording of property data by surveying firms is still in its infancy. Firms have had basic data recording systems for many years but it is only now that firms are implementing more advanced systems capable of detailed data analysis and presentation. Surveyors are learning of the advantages of recording and managing data effectively which permits more detailed analysis and therefore increased quality in their reports to clients. If increased quantities of data are available, recording and management systems will have to improve to be able to utilise these data effectively.

5.1.3 The formation of specialist market analysis firms and departments within large PPSP.

If all property related data were made available then there exists the possibility of specialist analysis within the property market. With vast quantities of data, firms or specific departments could specialise in obtaining data relating to particular property sub markets

such as the market in hotels or guest houses and concentrate on providing valuations and general analysis relating to those markets. These specialisms would increase the quality of advice relating to these sub-markets as such firms would have collected detailed knowledge and gained experience relating to the operation of the specific sub market.

5.1.4 An increase in competition within the property profession based upon quality of service

Many surveying clients are secured by the larger firms on the basis that these clients believe the larger firms hold greater quantities of data than their smaller competitors and so are in a position to offer advice supported by greater amounts of data. Permitting firms of all sizes access to the same data will change the basis of the clients choice of surveying practice from the one holding the most data to the one offering the better quality of service and analysis within the advice given.

5.1.5 An improvement in the quality of the valuation process

Chapter 3 emphasised the importance of comparable evidence in the production of a valuation. The greater the quantity, and quality, of comparable evidence then the greater the objectivity of the process. The more objective the valuation judgement the smaller the possibility of error. Pooling private sector valuation evidence would expand the available information base thereby allowing valuers access to a greater number of comparables so increasing the chance of locating several relevant, high quality comparables.

These five benefits of private sector data release and pooling provide overwhelming support for such a concept. If the profession is truly committed to improving the quality of the valuation process and the accuracy of valuations, data release and pooling will go some way towards achieving this aim. Superior data recording and management techniques, and an understanding of Information Technology in general, can only raise the quality of analysis and advice to the levels associated with alternative assets.

The profession must be educated as to the benefits of data release and pooling in order to increase support for the concept. This support will speed up the realisation of the concept and if the RICS took the lead in educating surveyors, as they are beginning to do so, the time scale for data release may not be too far in the future.

5.2 Barriers to data release and pooling.

The following sections outline the disadvantages and potential barriers to data release and pooling which are inextricably linked. These barriers were identified during pilot work, some are attitudinal and others technical. Each section describes how the barrier could prevent data release and pooling and illustrates possible solutions.

5.2.1 Confidentiality

It was continually emphasised during pilot interviews that it is the client's that own any property data resulting from a transaction and not the surveying firms that subsequently record and hold these data. It is therefore the decision of the client as to whether these data remain confidential or can be released to the property press or to other surveying firms for use as comparable evidence. If the client does not prohibit data release the surveying firm itself may do so to protect its competitive advantage (See 5.2.2) Auction results are clearly not confidential as they are widely reported, often in the property press, and clients in this case are unconcerned with confidentiality. For the larger majority of private transactions, property data remain confidential. The reasons for this are unclear. Possible reasons could include a purchaser being unwilling to reveal the purchase price of a property to competitors as it may be an indicator of an organisation's asset value, even though this information is often publicly available in published accounts or shareholders reports. Another reason may be similar to that of individuals not wanting neighbours to discover the price paid or received for a residential property, that is embarrassment if a price was paid above the true

market value or envy at a higher than expected selling price. Whatever the reasons, the fact remains that clients prevent the release of property data.

Clients ensure confidentiality through the insertion of confidentiality clauses into leases and contracts of work between clients and surveying firms. These clauses provide the legal discouragement for any surveying firms who may wish to use and release raw data and gives clients a legal recourse if surveying firms act against their wishes. Wiseman (1992) comments that confidentiality clauses mean an agent has "no right, without the clients authority, to divulge details of land transactions." Such clauses prevent the release of the data in any form that makes it possible to identify the transaction details with the client's name or the property address. The aggregation of transaction details with other transactions will mask the individual property details allowing data release in this roundabout way. It is therefore vital to remove confidentiality clauses if data release and pooling is to be feasible.

An editorial in the Estates Gazette referred to a "catch 22" situation between the use of confidentiality clauses and the requirements for valuation evidence (Estates Gazette 1993a). Clients are, in effect, shooting themselves in the foot as preventing data release inhibits valuation accuracy and therefore the quality of advice they eventually receive. Another editorial (Estates Gazette 1993b, p25) commented that attitudes towards data sharing are changing due to the prevailing market circumstances and the paucity of transactions and that

> *"it is now up to the property industry to foster a greater openness and do all it can to assist a sensible free flow of information."*

There seem to be conflicting signals for the surveying clients with regard to confidentiality clauses (Wyatt 1995) but encouragingly the former Governor of the Bank of England, Robert Leigh-Pemberton, stated:

> *"...a diminished use of (confidentiality) clauses and a greater willingness to make data available would encourage a more efficient market and aid research and perhaps policy making"*(Springett 1993, p16)

Valuers actually swap large amounts of property data via the "grapevine". Divulging confidential data to other valuers will breach confidentiality clauses and it is only the informal nature of the network that permits its operation. Clients are obviously aware of its operation so must realise the grapevine is an essential tool in the valuation process. Other organisations also hold property data such as the Valuation Office Agency and the Land Registry. Data are held within at least three different organisations so are not strictly confidential in the sense that only the client, the surveying firm and two solicitors are aware of the transaction details. In court hearings where comparable evidence must be submitted, details of transactions are available for scrutiny further breaching confidentiality clauses. For these reasons research interviews discovered that the research heads of surveying firms did not believe confidentiality an insurmountable problem if education were forthcoming and appropriate guidelines were set in place to protect clients. This conflicted with the results of the main survey, discussed in detail later in this chapter, which highlighted confidentiality as the primary barrier to data release. Researchers believed confidentiality more of a problem when concerning the release of lease incentive details. Releasing such details may weaken the bargaining position of the landlord with existing and potential tenants if they discovered that the landlord had offered a particular incentive to attract a new tenant. In fact confidentiality masks the true nature of agreements allowing landlords to negotiate from an unfair position as tenants are unaware of the prevailing incentives within a market. Confidentiality clauses have the affect of skewing the market, a concept highlighted by Feenan and Dixon (1992)

> *"Confidentiality agreements are designed to hype a market beyond its equilibrium, provide no evidence so that negotiations based on subsequent acquisitions must start afresh and conceal any incentives that may have been offered to the tenant to ensure his occupation. Until secrecy and confidentiality have been removed from the property market a national property information system seems unlikely."*

Confidentiality clauses not only "hype" the market and inhibit the flow of data but seem to have no obvious advantages to the profession. Clients need to be educated by the RICS to

understand the benefits of openness in the market. Indeed the RICS have called for price information relating to property deals to be made public:

> *"Prices paid at auction are not confidential and there is no reason why private transactions should be treated any differently"* (Estates Gazette 1994, p37)

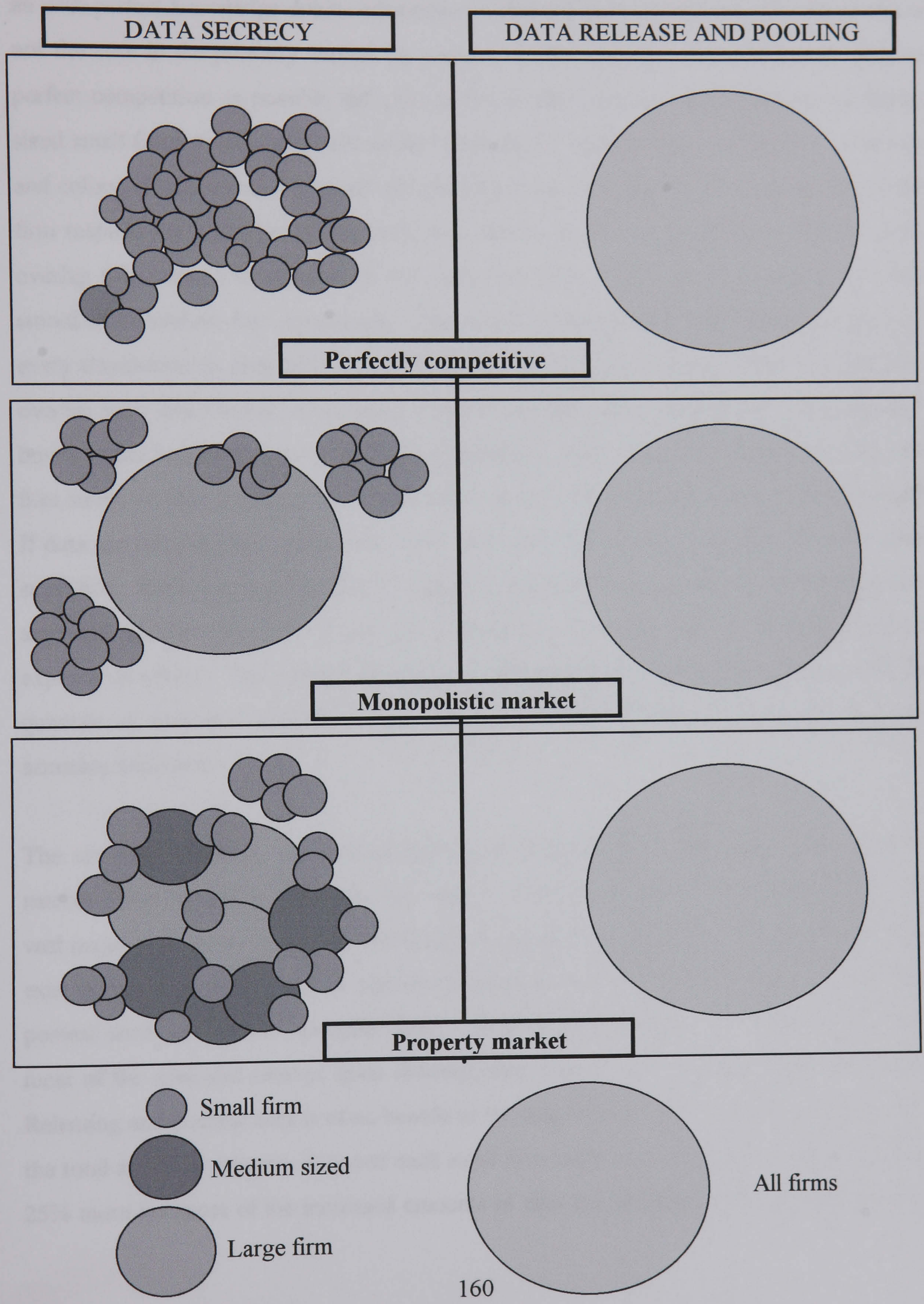
The advantages of data release and pooling have been clearly stated earlier in the chapter and clients should support such a concept unless they believe protecting confidentiality is a higher priority than improving the quality of advice they receive from surveying practices.

Education and persuasion from the RICS and surveying firms or a voluntary code may guide clients towards agreeing to lift confidentiality clauses but if this is not enough it may require legislation. Removing confidentiality clauses would be a significant step towards the introduction of a NVED. Obviously no data release means no NVED but is there a way to protect confidentiality and still develop a NVED system? Clients seem unconcerned about data exchange via the "grapevine" as it is no secret such exchange exists and no steps have been taken to prevent it. If clients are willing to permit surveyors to exchange data in this way then there would be little difference, except formalisation, in developing a NVED system but only allowing access to those firms contributing data. In this way only surveyors have access to property data protecting transaction details from anyone outside the system such as lawyers and accountants, unless they actually contributed relevant data, and this would provide the additional benefit of evening up the negotiation process with lease incentives being available for scrutiny. Of course there would have to be guidelines as to what is deemed a data contribution that merits access to the system. Contributing a single data item over a period of months could allow access to vast quantities of data which perhaps seems unfair. A full discussion of access issues appears in the next chapter.

5.2.2 Competitive advantage.

Firms may experience a competitive advantage over other firms as a consequence of the quantities of data they hold. Clients believe, and that belief is confirmed through the continued expansion of larger firms, that those firms holding the most data are in a position to offer the most informed advice and therefore the best quality of advice. Clients wish to receive the best quality of advice and it is clear that a surveying firm basing its advice on no data will not be in a position to offer such reliable advice as a firm basing its advice on large quantities of data. Firms are therefore keen to preserve this information advantage as it secures business. Such advantages do not just occur they have to be built. Large firms constantly collect and record data, the more transactions the more data, and have spent valuable resources in terms of time and money in the process. This effort in terms of time and resources would be considered wasted if data were released into the public domain for the benefit of competitors if competitors did not also release their data. Alternatively, agreements could occur between a limited number of firms willing to share data and the pool of released data could remain inaccessible to all those firms who did not contribute. However, this situation would limit the potential advantages of data release and pooling. Data pooling will inevitably result in a loss of information advantage but a gain in the quantity of information available. The level of gain, and indeed size of the loss, will depend upon the competitive structure of the property market. This is illustrated by figure 5.1 below.

Figure 5.1 The influence of data release and pooling on data quantities in differing market scenarios.



The diagram examines the effect that data release and pooling would have in differing market competition scenarios. In perfect competition there are a large number of small firms all with perfect knowledge due to information transparency in the market. Of course this is not the case in the property market for reasons of data secrecy. If a situation as close to perfect competition as possible did exist in the property market, large numbers of similar sized small firms would each hold similar amounts of property data. In figure 5.1 the size and colour of each circle represents the quantity of data held by the firm and the size of the firm respectively. The larger the circle then the more data the firm holds. Where circles overlap this shows that firms store the same data, that is there is an overlap in the data stored and therefore data duplication. This occurs because there is more than one party to every transaction so identical transaction details are stored by different firms. A firm may overlap with any number of different firms or perhaps just a single firm. The diagram, however illustrates a number of different possibilities. Prior to data release and pooling each firm stores its data in-house for only its own use and cannot access the data of other firms. If data are released and pooled then every small firm has access to the data of every other small firm. Each firm benefits roughly equally in terms of the increased amounts of data now available therefore no firms loose any information advantage and no firms gain at the expense of others. This greatly increases the availability of comparable evidence and the quantity of evidence available to the valuer. Valuations become more objective and accuracy improves.

The situation regarding competitive advantage is completely different in a monopolistic market. One large firm dominates the market. In the diagram one large firm controls the vast majority of the data with the remainder shared between the smaller firms. Smaller firms exist in the market but tend to operate in specialist sub-markets and to that extent each possess small amounts of specialist data. The large firm is not in direct competition with most of the specialist smaller firms although they may be in competition with each other. Releasing and pooling data is of no benefit to the larger firm. If the large firm holds 75% of the total available property data and each small firm holds around 1-2% the large firm gains 25% more but most of the increased amounts of data are specialist data. In order to utilise

these data it would have to compete in the specialist market areas against firms who have built experience and expertise in these markets over a period of years. The smaller firms, on the other hand, gain a tremendous advantage with each now in possession of all the market's data instead of only around 1%, the situation prior to data pooling. The large firm, through releasing its data, looses its stranglehold on the market and must now compete with the other smaller firms. The only danger to the smaller firms is that the larger firm decides to compete in their specialist sub-markets or other smaller firms enter that sub-market. Competition throughout the market will increase thereby improving the quality of service and advice. The quality of valuations produced by the large firm are unlikely to improve to a great extent as the larger firm is still using a similar amount of evidence, the new evidence gained being specialist data, but smaller firms producing valuations in areas other than specialist ones now have much greater quantities of data so their valuations will improve. As there is little advantage to the larger firm of releasing data, it is an unrealistic proposition without legislation.

Neither the scenario of perfect competition nor that of a monopoly is a realistic descriptor of the property market. Each local market will reflect a market competition scenario between these two extremes and the third scenario in the diagram represents a likely possibility. There are several small firms holding varying amounts of data as such firms will vary slightly in size. Small firms may specialise in certain sub-markets or localities limiting the collectable data. Five medium sized, regional firms again hold varying amounts of data depending upon their size and skill in collecting and accurately recording these data. There are overlaps in data held by the small firms, the regional firms and the three large firms operating in the market. The three larger, national firms in the market hold only slightly more data than regional firms as it is likely that regional firms have been established in an area longer than national firms and have built reputations and recorded large amounts of data. However, larger firms with greater resources and a national reputation can quickly establish themselves in a region and catch up in the data holding stakes.

Prior to data release no one firm dominates the market and competition exists but larger and regional firms secure business over smaller firms and over each other on the basis of the quantity of information they are deemed to possess. The main problem of such a competitive scenario is the quantity of data available upon which to base valuations. In no case does a firm have more than a small proportion of the total property data produced by the market and this lack of objective data can only inhibit the quality and reliability of valuations. Releasing and pooling data would offer advantages to all firms to a varying degree. The biggest advantage in terms of data quantity would be to the smaller firms who would benefit to the extent of between a 97% and 99% increase in data if such firms are assumed to hold 1-3% of the total data and allowing for data duplication. Larger firms will greatly increase their available data, the amount by which this is so depends on the data they already possess and the extent to which other firms hold duplicate data. Although large firms benefit less than others, the extent to which other firms benefit at the expense of larger firms is very small. Increases in data allow all firms to offer a better quality of service including more reliable valuation figures. Competition is not greatly affected as smaller firms continue to rely upon their expertise in specialist areas and sub markets not dominated by regional or larger firms. Those small firms that do compete with larger firms will now be in a stronger position. Regional and national firms would continue to compete but now on the basis of quality and not quantity. Clients will still tend to employ surveying practices who have shown the most experience and expertise in the area of interest. As the benefit in terms of data increase is great to all firms there are no obvious disadvantages to data pooling, and data release should be possible through the co-operation of private sector firms.

In summary, the diagram illustrates how private sector data release and pooling is a realistic possibility through co-operation in the private sector and without government legislation but this is not the case if the market is dominated by a single firm. Even where two firms dominate a market, if they hold similar amounts of data, it would be beneficial to both firms to combine these data as they would have twice as much data to work with. In a scenario that reflects many regional and city property markets it is clear that data release and pooling is to the advantage of all firms and not just the smaller ones. Competitive advantage should

not be problematic if market competition is as simple as the diagram illustrates. However, there are complications that make the situation more complex. If data were pooled and nationally accessible it would be easy for new firms to enter any regional or city property market and although they have no market knowledge and experience they could still produce valuations and offer advice. Large London practices could operate in areas without a sub-branch if data for the city or region is accessible. Prudent clients should, however, always employ surveying practices with local knowledge and experience as once data are obtained there is still the skill in data interpretation required to produce an accurate valuation. Skill and experience are developed through practice in the local market and dealings with particular property types and takes many years to acquire.

Large firms would be able to obtain data on specialist sub-markets but it may be necessary to employ a valuer with expertise in the area to exploit the new business opportunities protecting smaller firms from extensive competition.

During pilot interviews, fears were expressed by interviewees in regionally based firms that if larger London based practices could obtain data relating to regional markets they may undercut established regional firms and, without specialist local market knowledge, the quality of valuations would fall. It should be emphasised that a vast objective database of evidence is essential for reliable valuations but skill, experience and local market knowledge are equally essential in order to place that evidence in the correct context. Nethertheless regional firms must exploit data freedom themselves to protect existing business.

Private sector data release would benefit all sizes of firm where the market is competitive. The property market is a competitive market and as such release and pooling of data should be possible through the co-operation of surveying practices although it is possible that larger firms may decide that smaller firms would benefit too much from data pooling so would restrict the system to larger firms which have sufficient quantities of data to offer the other participating firms. This should not be allowed to happen as would have an adverse affect

on small firms who try to compete but offer a more personal service to clients, especially smaller clients.

5.2.3 Conservatism of the profession.

The property profession has always regarded change with some scepticism. When change has occurred it has usually been a slow and gradual process. An example is the use of explicit discounted cash flow techniques applied to valuation. The use of such techniques has been advocated for more than 20 years but it is only now that evidence suggests that the techniques are finally being regularly adopted in practice, all be it in conjunction with traditional techniques (French 1996). Similarly the introduction of information technology in the surveying profession has been a painfully slow process when compared other service industries (Feenan and Dixon 1992). At the time of the stock exchange computerisation it would have been extremely rare to find a PC within a surveying firm, particularly in day to day use. Even three years ago many small and regional firms possessed little computer equipment. Observation and contact suggests that the pace of change over the last two years, in particular, has been extremely rapid. The larger firms have almost one PC per surveyor and most have networked systems. There are numerous software packages available to aid the valuer and property manager and the extent of the expansion in the services offered by Property Intelligence Plc illustrates the growth of on-line or regularly up-dated computer services. All the large firms and many regional firms now have World Wide Web pages and many have expanded into offering agency services via the internet (See chapter 7). With this expansion in information technology, computer literacy is rapidly increasing and new graduates entering the profession should have a good working knowledge of common computer software packages.

The RICS believes attitudes towards data sharing are changing (Estates Gazette 1993a) and are actively encouraging data sharing initiatives, but only encouraging and there is still an absence of any real action (RICS 1997), but pilot interviews conducted during this research suggested the old attitudes still prevail when it comes to the protection of competitive

advantage. Education is essential to persuade firms that data pooling is a necessity and that the advantages greatly outweigh the disadvantages. Very few firms will push for change unless it is specifically in their interest to do so and, consequently, the RICS and other interested parties must demonstrate that this is in fact the case. If the larger firms do support the concept of data release and pooling then it may be realised as quickly as computerisation was once its benefits could no longer be ignored.

5.2.4 Duty of care in ensuring data accuracy.

The responsibility for the recording of the details of a transaction falls to the valuer or agent, or perhaps is designated to a clerk, secretary or IT operator, of one or usually both of the transacting parties. The agent or valuer is a professional but not in the sense of a data recorder. The question arises to whether the recorder of the data owes a duty of care in ensuring the accuracy of any data accessible to other valuers. A situation may arise where data is retrieved from a system and a valuer relies upon this when producing a valuation, the data turns out to be inaccurate and has a damaging effect on the reliability of the valuation figure. In this situation can action be taken against the original recorder if the valuer were sued? If this is the case and a valuer who incorrectly recorded data is successfully sued, no valuer will risk entering data onto a system and any system based upon pooled data will cease to be effective. To overcome this problem there must firstly be a detailed set of recording standards for any data system to minimise the possibility of recording error. Secondly there should be Metadata commenting on the quality of the data, when and by whom it was recorded and if it has been checked for accuracy. "Meta information" and "Metadata" (data about data) have their origins in computer science and are often used to refer to descriptive information about other information or data contained in data-sets that a user intends to utilise (Ralphs 1998). "Metadata" is vital to enable the user of a data-set to make an informed decision about whether or not the data contained in the data-set are suitable for his/her particular purpose. There is a growing body of literature concerning Metadata and spatial data (For example Burrough 1986)and the Ordnance Survey's search database, SINES, provides an example of meta information at work (Ralphs 1997). The

United States Government has also published a standard set of Metadata for describing spatial information (Federal Geographic Data Committee 1994). Metadata is now vital in describing the contents and procedures surrounding data-sets and the Metadata used to describe the NVED are examined in chapter 8.

To allow for data accuracy checks, the name of the data recorder should appear on any transaction record, possibly with a direct E-mail link to allow direct contact with the recorder. A standard E-mail could be sent enquiring as to whether the accuracy of the data has been checked and to ensure that the data recorder is satisfied with the accuracy of the data before its use. If the accuracy is not checked by the user in this way and data are inaccurate, it is the fault of the user for not checking the data with the original party. If data recorders are careful in recording data, follow uniform standards and check data where necessary then recording error should not occur. It will take time for valuers to become confident of data accuracy but once confidence is built then there should be no need to check the quality of the data. The distribution of possible liabilities for data inaccuracies is an area in need of further research not just for any NVED system but for any local, regional or national database system where inaccurate contents could lead to litigation.

5.2.5 Expense

Many firms may consider it too expensive to release and pool data in comparison to the perceived benefits. The expense would arise from the combination of existing fragmented comparable database systems into a standard nationally accessible system. Existing systems hold similar data but are based around different software packages or are bespoke systems, so combination would be problematic. Data would need to be manually re-entered in most cases. An up to date comparable system would not need to contain records more that 6 months old because such data is rarely of use for comparable purposes. Therefore only a small proportion of existing data would need to be input into the new system. The system would then be built up with new transaction data. An alternative and preferable method which would reduce expense is to encourage all firms to adopt identical database systems

and recording standards prior to data release and pooling. This would not only make pooling a simple combination of existing databases but also train and familiarise surveyors with the technology. This would vastly reduce the expense in terms of standardisation and training and speed up data pooling. There would still be the expense of developing a network of surveying firms and administering any national system, but this is common to all on-line data systems.

5.2.6 Data control

If comparable data is released and pooled who has ultimate control over the data? Should the firms who entered the data have control to withdraw or amend the data if it were not accurate or out of date? If a fee is to be payable for accessing the data, who decides on the fee level, an individual firm or via agreement and who would administer the pricing mechanism and pay for maintenance and pay for software and system upgrades? Confusion and uncertainty relating to these issues may prove a barrier to data release and pooling. These are therefore vital questions which must be answered prior to pooling.

There are two options in relation to data control. Firstly firms hold their own data in-house and a central hub allows access to each individual data set. In this way firms maintain control over the data they recorded. Secondly a data holding organisation stores and controls all data recorded by each firm. This poses issues of security but eases the problem of maintenance and upgrades.

5.2.7 Incompatibility of data.

Different firms have different systems containing slightly different data. Such systems are likely to be incompatible and indeed observations suggest that often two systems in the same surveying department are actually incompatible. Adopting a uniform database structure and set of standards is a necessity prior to data release and pooling and the development of a national data system.

5.2.8 The Data Protection Act 1984.

A possible barrier to the release and pooling of data is the 1984 (revised in 1992) Data Protection Act (DPA). This act:

> *"...gives new rights to individuals about whom information is recorded on computer. They may find out information about themselves, challenge it if appropriate and claim compensation in certain circumstances. The act places obligations on those who record and use personal data (data users). They must be open about that use (through the Data Protection Register) and follow sound and proper practices (the Data Protection Principles)."* (DPA 1992, p1)

Many individuals, companies and organisations will hold personal data in computer files for many purposes. The DPA ensures that the data users hold the data subject to a set of principles and that they are registered with the Data Protection Registrar (DPR). Within the register the data user must register those to whom personal data will be disclosed and the purpose of this disclosure. Personal data must not be used for any purposes other than those registered with the DPR. Users of any national system will have to register all possible uses of the comparable evidence to ensure they do not breach any sections of the DPA. This ensures the use of personal data is highly regulated. Individuals may access any personal data held in a database relating to that individual at any time and compensation may be claimed by an individual if any damages are suffered due to data inaccuracies, the unauthorised disclosure of data or alterations to personal data. Damages are only payable if an individual has suffered a physical, or more likely, a financial loss.

How would the general principles of the DPA apply to a national database system? Firstly the DPA only applies to personal data which is defined as:

> *"...data consisting of information which relates to a living individual who can be identified from that information (or from* that *and other*

> *information in the possession of the data user), including any expression of opinion about the individual but not any indication of the intentions of the data user in respect of that individual."* (DPA 1992, p6)

Data relating to any companies or organisations are outside the DPA as the act refers to personal data only. A comparable record will contain transaction details and property details tied to a company, organisation or individual. It is only where the transaction is linked to a named individual or sole trader that the DPA applies or where an individual or individuals are identifiable with a company or organisation for example the company name is that of an individual. Any transaction involving a named individual is covered by the DPA and any data users that hold such data must be registered with the registrar as must the uses of the data and a list of those to whom the data may be disclosed. A national system will contain personal data so all uses of the data and all users of the data must register with the DPR. This would include any central body responsible for storing and maintaining the data and all parties that access the data. Those parties with access to the data would also have to register the potential uses to which they will put the data, for example as evidence in valuation reports. Each system subscriber will have to pay the data protection fee and will have to follow strict guidelines on the use of personal data.

In summary, problems arise where transactions involve identifiable individuals as the data is personal and subject to DPA principles. In the vast majority of cases these principles will not apply but any data system not correctly registered would make it an offence to search a database to discover what properties were owned by a particular individual. To ensure compliance, the holders of transaction data if accessible by other parties should register with the data protection registrar to avoid possible problems.

5.2.9 Copyright

The Copyright, Designs and Patents Act 1988 embraces developments in IT and explicitly protects software and, by implication, also protects databases (Larner 1992). In order for any data-set to be covered by copyright law it must be recorded "in writing or otherwise"

and must qualify as "...an original literary work". (Copyright, Designs and Patents Act 1988) The Act only protects the form in which ideas and schemes are expressed and not the ideas and schemes themselves. Another body could independently gather the data presented by a pooled data-set and this act would not infringe copyright but if they directly copied the data presented in a particular form and layout it would infringe copyright. A body downloading all pooled data and setting up their own system would infringe copyright and would have to pay damages. This limits individual firms with access to the data downloading all data and selling on the data, or even parts of the data, for commercial gain as they would copy the arrangement and selection of the data-set. Specialist firms downloading specialist data, such as all comparables in a particular city, would need special permission from the copyright owner to commercially sell these data so not to infringe copyright. Where the effort of another in compiling a data-set is used in an information product, even if the selection and arrangement are not reproduced then damages are incurred (Larner 1998).

The copyright owner is the author of the work, therefore the firm that records the comparable evidence record is the author of that particular item of data but the form and arrangement of the data are dictated by any database structure and standards and whether data are held by individual data storers or a single body. The only simple way to administer the copyright protection is for a single body controlling pooled data to hold the copyright instead of each individual data provider holding the copyright over their individual data items. Whoever is the copyright owner has exclusive right to:

- Copy the work.
- Issue copies of the work to the public.
- Perform, show or play the work in public.
- Broadcast the work

The issuing of a copyright licence will restrict the rights of each database subscriber to perform certain tasks with those data. Certain acts are outside copyright protection such as using a data-set for research or private study for education or in archives, but other than these the copyright licence would set out what could and could not be done with the data-

set. As long as each copyright licence issued by the copyright owner to each pooled data user clearly sets out the permissions and restrictions, for example large quantities of data must not be released outside the firm but small quantities of the evidence could be included in their original form and pasted into a valuation report, then copyright should be protected and should not be a major problem.

5.2.10 Time taken to record and retrieve data

Valuers are reluctant, at best, to spend time recording data as many believe they will be of no use in the future. Transaction details involve surveyors recording numerous property characteristics and the more detailed the data record the more time spent inputting data. The only way to reduce the time spent inputting data is to implement an efficient database system that is easy to use and compact. It will remain an inevitability that many surveyors feel it is wasted time recording data and this is where the following section is important.

5.2.11 Persuading surveyors to record data

A major problem identified from existing databases is the unwillingness of surveyors to spend time recording data. Surveyors do not want to spend 5 minutes recording data they may never use and many believe time spent recording data is fee earning time lost. Education is necessary to change these attitudes and emphasise the importance of recording data. A surveyor may not use the data again but another member of the firm might and, at worst, at least all members of the department know what properties have previously been dealt with. Recording all data would greatly reduce the time spent searching for data, more than compensating for the time spent recording the data. Recording data increases efficiency and if that is emphasised to surveyors it may overcome the unwillingness to record data.

5.3 Survey results - the professions view.

The main postal survey investigated the profession's opinions as to the main barriers to data release and pooling. The questionnaire provided respondents with a list of the nine barriers to data release and pooling identified during the pilot work described in the previous section, and were asked to select from the list the three most significant barriers. A ranking of one was given to the primary barrier, two to the secondary barrier and three to the tertiary barrier. Table 5.1 below sets out the results.

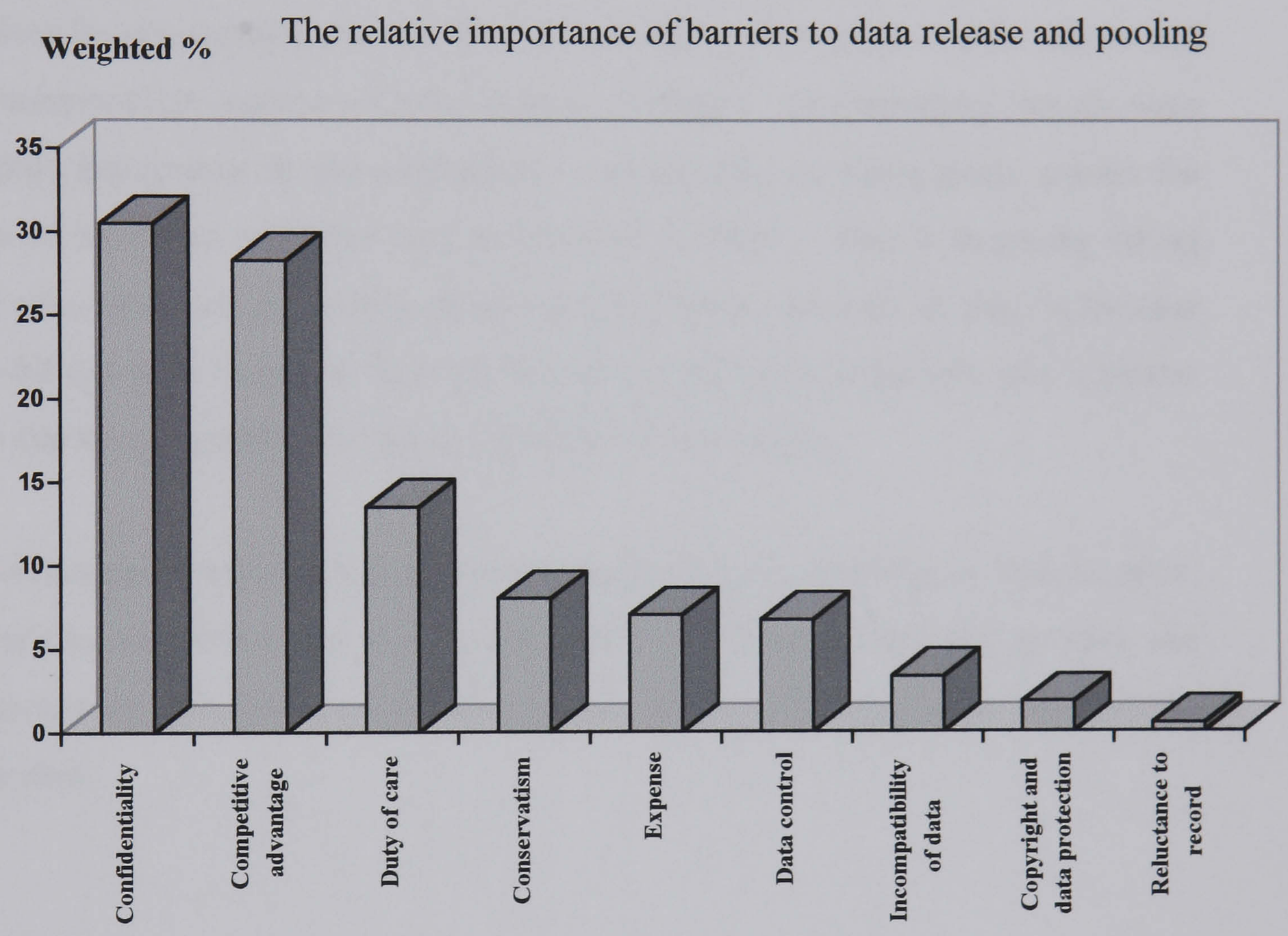
Table 5.1 Barriers to date release

Barrier	Primary barrier (%)	Secondary barrier (%)	Tertiary barrier (%)	% believed barrier important	Weighted rank of importance
Confidentiality	37	31	10	78	1
Competitive advantage	43	17	7	67	2
Duty of care in ensuring accuracy	5	13	39	58	3
Conservatism	7	11	5	23	4
Expense	3	11	14	28	5
Data control	2	11	12	25	6
Incompatibility of data	2	2	10	14	7
Data Protection Act and copyright	0	4	3	7	8
Inaccurate data	1	0	0	1	9
Inability to update data	1	0	0	1	9
Persuading surveyors to record data	0	0	0	0	11
Total	100	100	100		

The table shows a list of the barriers given to the respondents and two additional barriers included by respondents; inaccurate data and inability to update data. The rank of importance was derived by calculating a weighted percentage for each barrier in an identical manner to that used to rank the importance of valuation evidence sources (see section 4.4.2). Figure 5.2 shows the weighted percentages in a graphical form which indicates the relative importance of each source.

Figure 5.2

The relative importance of barriers to data release and pooling



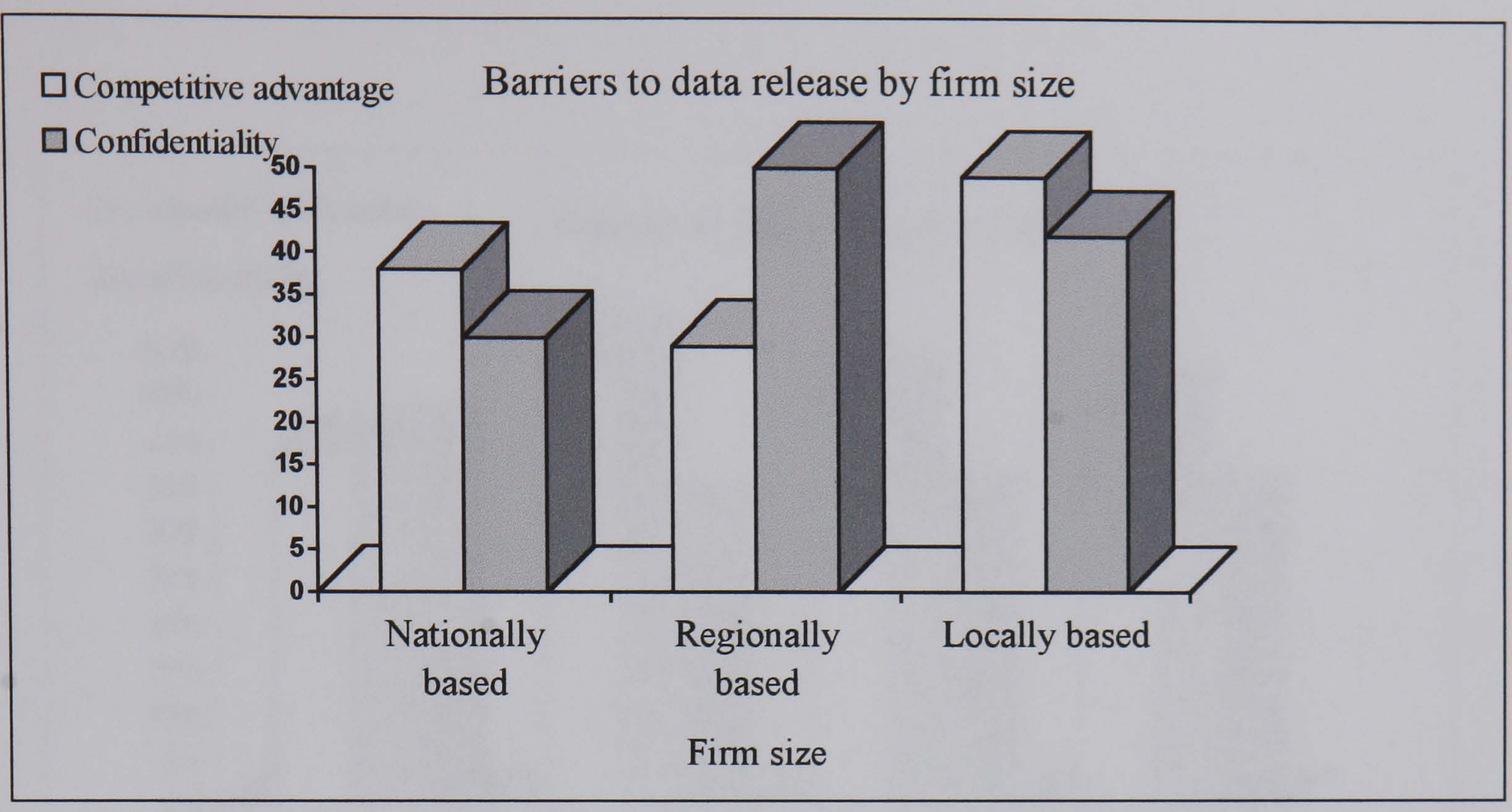
From figure 5.2 it is clear that two barriers to data release and pooling are way ahead of the others in terms of importance. Confidentiality was ranked as the greatest barrier closely followed by competitive advantage. Competitive advantage was selected as the primary barrier by the highest percentage of respondents (43% compared to 37%) but a higher percentage rated confidentiality as one of the top three barriers (78% compared to 67%). The rating of confidentiality as the primary barrier contradicted the views obtained from

research heads during pilot work who thought confidentiality would not provide a serious barrier. Confidentiality and competitive advantage are, without doubt, the most difficult barriers to remove. Education, persuasion and an illustration of the benefits of data release are needed in order to make progress in changing attitudes.

The remaining barriers are largely technical. Duty of care in ensuring data accuracy was third illustrating that surveyors would be worried by the possibility of being sued for entering inaccurate data onto the database. Conservatism, expense and incompatibility of data were close in fourth, fifth and sixth respectively. Expense and incompatibility of data are easily solved by encouraging the use of a standardised system prior to data release and pooling and conservatism requires a further change of attitude. The remaining barriers were thought of little importance by the profession. Interestingly, no respondents quoted the unwillingness of surveyors to record data as a barrier to release. This is surprising taking into account pilot work and work undertaken after the survey research. It may be because respondents did not wish to appear ignorant or lazy as ranking as important such a barrier may indicate that they themselves would be unwilling to record data.

In order to investigate whether primary barriers varied with the firm size or firm location, responses were broken down into various categories. Figure 5.3 illustrates primary and secondary barriers for each firm size, only the top two because they were so far ahead of the remaining barriers.

Figure 5.3 Barriers to data release by firm size.



In both nationally and locally based firms, competitive advantage was the primary barrier to data release. National firms believe they would loose their stranglehold on the market by allowing other firms of all sizes access to their data. Locally based firms fear loosing their grip on the small and specialist markets within which they operate. Surprisingly, given the worries expressed by regional firms in regard to losing business to larger firms, it was the regional firms who rated confidentiality above competitive advantage. Obviously the views of regionally based firms vary widely depending upon individual circumstances. It must be stated that although these relationships exist they are not statistically significant so cannot be applied to the general population, all surveying firms throughout the country.

Figure 5.4 Barriers to data release by location.

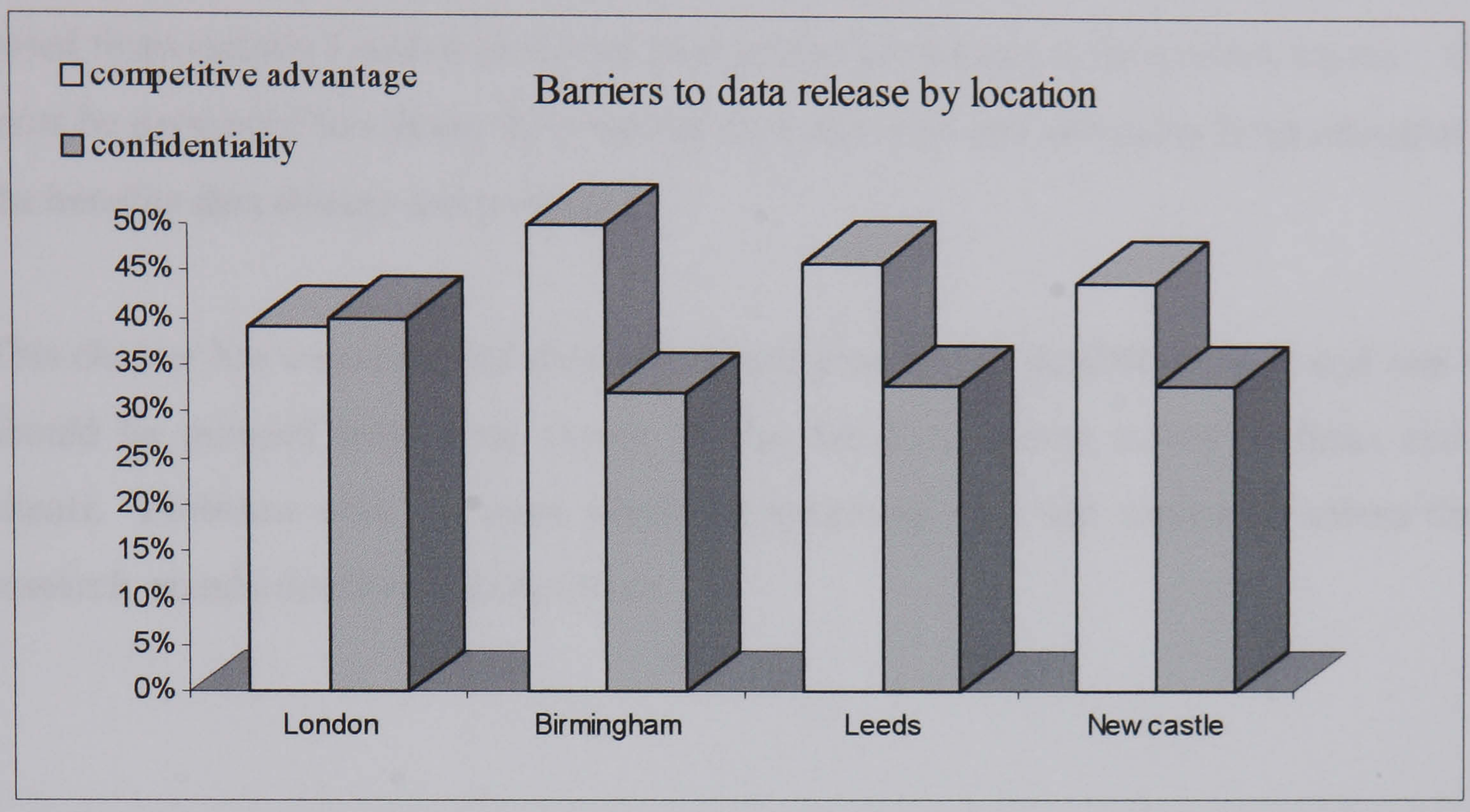


Figure 5.4 shows attitudes to barriers broken down by area. London firms ranked confidentiality and competitive advantage very closely but in areas outside London, in all cases, the barrier of competitive advantage was above that of confidentiality. Regionally and locally based firms outside London are concerned that following national access to data, data relating to their regional markets will become accessible to firms outside their region allowing larger firms from all over the country, especially London, to operate within their markets increasing competition.

5.4 Summary.

This chapter has described not only the advantages and benefits of data release and pooling but also the barriers which may prevent it happening. The advantages to the profession are clear in terms of increasing the availability of valuation evidence leading to more accurate valuations and an improved quality of advice. Co-operation between firms would demonstrate a willingness to improve the profession and would only improve the reputation and standing of the profession as a whole. Effective release would involve pooling data into

a nationally accessible database, the form of which is discussed in the next chapter. The main barriers to data release and pooling were identified through survey research as firstly, confidentiality and secondly, competitive advantage however those regional and locally based firms outside London perceived competitive advantage as the primary barrier. Clients must be persuaded to release the property data they own and surveying firms educated as to the benefits data release and pooling.

This chapter has demonstrated data release and pooling is a feasible concept and one which should be pursued with great vigour by the RICS, chartered surveying firms and their clients. Problems exist but none which are insurmountable and cannot be solved through research, standardisation and education.

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Chapter 6 A National Valuation Evidence Database

6.1 Introduction

The previous chapter examined the advantages of data release and pooling and concluded that, to be successful, widespread data release must be accompanied by a system that allows efficient access to these pooled data. To improve valuation accuracy chapter 3 concluded that transaction data must be released, pooled and organised into a system that allows access to comprehensive details of these transaction. The remaining chapters focus on such a system known as the National Valuation Evidence Database (NVED) and this chapter begins with a definition followed by an exploration of the NVED aims and describes the basics of the NVED, how it would operate and its potential advantages. There then follows a discussion of the technical aspects concerning the development of the NVED from existing database systems and discusses the possible procedure for allowing data access, charging for such access and procedures for organising and maintaining the database. The chapter concludes by examining the profession's attitudes to a NVED and the probability of implementation in the near future. This chapter places continuing emphasis on the need for a standard database structure and set of data quality recording standards, the development of which is the main objective of this research.

6.2 The concept of a National Valuation Evidence Database

The concept of the NVED was developed during the pilot stages of this research and with reference to other on-line technology such as the NLIS. It was continually refined and modified as the research progressed and technology improved. A NVED can thus defined as:

> *A national on-line database system and set of data quality standards for the recording, storage and provision of access to property transaction details.*

Ideally the NVED would operate in combination with other property data sets all of which would be accessible via the National Land Information Service (NLIS), providing the surveyor and valuer with access to a vast quantity of valuation evidence. The NLIS is explained in detail in chapter 7 but briefly it is, and will develop further into, an on-line system providing access to data for the whole of Great Britain showing the ownership, designated value and use of all land and property (Dale 1998). Any interested party will be able to gain on-line access to such data from designated access points, be they in the workplace, public organisations or the PC at home. (NLIS Home page 1998)

The NVED will be a closed system accessible only to those that contribute data to it. At this stage it is necessary to define who would actually use the system. The transaction details recorded within the system would have the primary use of comparable evidence, the data necessary for the production of valuations. This comparable evidence would be of use to all valuers and surveyors involved in the production of property valuations (additional uses of these data are explained later in this chapter and in chapter 9).These valuers will be employed in a number of different organisations which offer property related services to the office property market such as chartered surveying practices, Local Authorities, property consultants and property departments of large national organisations such as British Telecom or British Gas. In order to constantly refer to all these employers of surveyors/valuers the term professional property service providers (PPSP) will again be used.

At this stage of its development a NVED would contain, and allow access to, only private sector comparable evidence resulting from commercial office property transactions. It is envisaged that, at some future date, a NVED could be developed to allow the accommodation of comparable evidence relating to retail property, mixed use property, industrial property, business parks and other specialist property market sub-sectors. The database would also, through its links with the NLIS, allow access to other valuation evidence such as details relating to location perhaps including value maps, local and national

market commentary, planning data and any data which may affect property values. As previously mentioned, it would be a closed system only allowing access to the comparable evidence to PPSP actually participating in the NVED scheme. A closed system would remove many of the potential worries that surveyors' clients may have over the confidentiality of their data and this is demonstrated by the Investment Property Databank database which contains details of fund and property level data, the confidentiality of which is adequately protected through the application of safeguards on the release of information (Smith and Wyatt 1996).

A NVED, if implemented, would be a national database storing and allowing access to valuation evidence data. Current practice sees private sector PPSP storing their comparable evidence within in-house databases only accessible to that firm. Comparable evidence is retrieved from these databases by the firm's valuers and is backed up with evidence from other sources. A NVED would allow every participating PPSP in the country access to comparable evidence recorded by every other participating PPSP. This would have the affect of greatly increasing the availability of comparable evidence throughout the profession. Once a transaction is complete, one of the professional property service providers involved in the transaction, which one is discussed later, will record the comparable evidence onto the national system using a set of data quality recording standards which would aim to ensure data accuracy and uniformity. This comparable evidence is then available to any surveying practice which has networked access to the NVED. In this way, one firm is involved in the transaction and records the details but these details are now available to all PPSP instead of just the firms involved in the deal which is presently the case. Charging firms a fee for accessing these data will help pay for system maintenance and the firm responsible for recording the data will receive revenue as a consequence of contributing comparable evidence. In this way, the larger firms who record the majority of the data are actually compensated for any perceived loss of competitive advantage.

Recording comparable evidence would take place at the desktop PC or any other suitably networked computer and, using the database developed as part of this research, is a simple

process, being a mixture of typing in data unique to each property and selecting entries from drop down lists of possibilities. Using this system makes recording data quick and effective with standardised entries improving data accuracy and facilitating query searches.

Valuers could retrieve data from the system via searches undertaken at a networked computer by selecting a search screen where they could enter search criteria to retrieve relevant comparable evidence. For example, valuers could search for all evidence recorded in the last 2 months in a specified city within specified size ranges. A search will be possible on any of the data fields thereby allowing both general and specific comparable queries. Users could print the retrieved evidence in full for presentation in valuation reports or, if necessary, as evidence in court to back up a valuation figure. Alternatively valuers could print a summary report to identify areas where a search may be refined or which records to print in full. Whatever the case, the use of an effective query mechanism would greatly increase the efficiency of data collection.

To be fully effective, the NVED would require the co-operation of all firms in recording their data and allowing the pooling of their data into a national system. It also requires all participating organisations to adopt the NVED technology; the database and standards for which are developed as part of this research. It is possible this may, depending upon the networking technology adopted, require some initial capital outlay. If firms are willing to co-operate, the effective use of a NVED will greatly influence the valuation process by achieving its aims which are set out below.

The aims of a NVED are:

- to increase the availability of comparable evidence,
- to improve the efficiency of comparable evidence data collection,
- to improve the quality of comparable evidence,
- to provide, in combination with other property data-sets, a single on-line source of valuation evidence,
- to improve the accuracy of property valuations,

- to improve the quality of service to clients.

A NVED would achieve these aims by:

- allowing all professional property service providers access to a national database of private sector property comparable evidence,
- allowing fast and effective query searches to permit the location of specific and general items of comparable evidence so reducing time spent collecting data,
- introducing a set of data quality standards for the recording of comparable evidence to ensure data accuracy, completeness and uniformity,
- combining with other property data sets to allow access to a wide range of property data from a networked computer,
- promoting co-operation through agreements to pool and share data,
- permitting an increased degree of objectivity in valuations thereby improving data analysis and increasing accuracy.

6.2.1 Advantages of a NVED

The main advantage of a NVED to the commercial property valuation profession is that it will increase the availability of comparable evidence, and eventually other valuation evidence when combined with the NLIS. Increasing the availability of valuation evidence raises the probability of a valuer finding good quality comparable evidence upon which to base a valuation figure. This increases the valuer's information base and therefore the objectivity of the valuation, the benefits of which have been well documented in chapter 3.

A NVED will also provide an easily accessible, on-line source of comparable evidence. Currently valuers have to rely on limited in-house databases and paper records and back up this evidence with many other sources of evidence which are necessary to provide a sufficient information base from which to extrapolate. The comparable evidence contained in the NVED should be accurate and comprehensive making it unnecessary for the valuer to contact other sources to confirm the comparable evidence details. This not only improves

the efficiency of data collection but the quality of advice as more of a valuer's time may be spent analysing collated data.

The NVED will also improve the quality of comparable evidence as recording standards will encourage the detailed and accurate recording of transaction data. This ensures valuers are analysing factually correct evidence thus reducing the scope for error.

The NVED may also increase competition between PPSP as business is no longer secured on the quantity of data a firm holds, as all firms hold the same data, but on the overall quality of service offered to clients. This should have the affect of raising the profile, reputation and standing of PPSP in the eyes of their clients.

A substantial data-set of high quality, complete evidence opens up opportunities for valuation research. Such a database is ideal for the development of new valuation techniques which are far more explicit and objective than traditional methods. This topic is dealt with in depth in chapter 9. The data will also be ideal for the production of trends and statistics of superior accuracy than present because of the increased amounts of data on which to base the analysis. Such trends and statistics will not only aid valuation by providing detailed market commentary information but also aid the production of Estimated Realisation Price figures as such statistics give the valuer an idea of future market performance.

6.2.2 Disadvantages of a NVED.

There are, however, a number of potential disadvantages associated with a NVED. The NVED would destroy a firms information advantage. These firms may lose their hold on a market sector but in turn this will have the beneficial influence of increasing competition between PPSP so ultimately improving the quality of service to clients. Firms could access comparable evidence for any location in the country from any location in the country so firms from the North, in theory, could practice in the South, and vice versa. This does

increase competition but firms can practice in areas where they have no local market experience and expertise and such expertise is vital in the valuation profession. This may lead to further expansion of the larger, nationally based firms. Increasing competition in this way may endanger small and regional firms who could not compete with reduced fees.

PPSP not participating in a NVED may find it difficult to compete with those that do. Many surveyors will be at odds with the ideology of data sharing so refuse to co-operate in any data sharing scheme. Clients may prove reluctant to employ surveyors whose firms are not part of the NVED as they may be hesitant as to whether such surveyors could offer a quality of service, in terms of valuation accuracy, comparable to those with access to a NVED. There is also a danger that the larger firms will set up their own system to the exclusion of smaller firms. Exclusion in this way may significantly reduce the competitive abilities of many PPSP perhaps reducing the number of smaller firms in the profession and destroying the vital, specialist roles that these firms fulfil.

The whole profession must be made aware of the advantages and disadvantages of a NVED system and decide if it is a concept they wish to pursue but survey results do indicate that those respondents who were aware of the arguments actually responded in favour of a NVED (see section 6.6.4)

6.2.3 Local and Regional Valuation Evidence Databases

Before the introduction of a NVED it may be necessary, and indeed prudent, to build the system from a local and then regional level treating these initial systems as the building blocks of a national database. This will overcome many of the potential problems of a NVED before the system is fully implemented avoiding frustrating delays. The development of a Local Valuation Evidence Database (LVED) will involve simple agreements between valuation firms operating in the same local market. Initial research interviews suggested that verbal agreements already exist whereby firms agree only to share data with each other. Several firms may agree to share and pool their comparable data, making this pool available

only to the participating firms. To create such a LVED firms will need to adopt a standardised database structure and set of data recording standards before linking their databases. Subsequent comparable evidence will then be entered into these new databases. Alternatively there could be a single database held by one of the participating firms to which all firms are networked and into and from which all data is entered and retrieved.

A regional property market is made up of a number of local markets. As the number of LVEDs within a region expands linking existing LVEDs would create a Regional Valuation Evidence Database (RVED). Non participating firms could join a LVED or RVED at any time so long as they contributed data to the database. As more and more firms join the agreements and the RVED's gradually grow a combination of these RVED's will form the basis of the NVED. The main problem with local and regional valuation evidence databases is that PPSP participating in the scheme will have the power to decide who to admit to the system. This could lead to the exclusion of new PPSP who would obviously have no existing data to contribute or any established firms from outside the area who wish to move into a new market. Guidelines are therefore necessary to ensure that such exclusion is prohibited. If it is clear that a PPSP has the resources to legitimately practice in an area and their inclusion is likely to prove beneficial to the system in the near future exclusion must not be permitted.

6.3 Data combination.

The national database will begin as a combination of the existing comparable databases of private sector professional property service providers whether it is built from a local, regional or national base. The combination of these in-house databases will provide the basis of a national system accessible to all participating PPSP from a suitably networked computer. There are three possible options relating to NVED access, a closed networked system between PPSP, probably an intranet, a data-set accessible via the internet or a data-set of the NLIS. Each of these options has its benefits and drawbacks and these are discussed in the next section.

Combining existing in-house databases of PPSP will produce a database of all transactions involving private sector PPSP, at least those that were actually recorded. There would obviously be a great deal of data duplication as there are at least two parties to every transaction and in many cases these data may prove inconsistent. Indeed there are numerous problems combining existing databases without extensive preparation which are, perhaps, too serious to overcome. For example, only half of PPSP have computerised databases and where they have been developed they have been developed independently. Therefore individual databases will record different data on different software, some of which will be incompatible. Many databases record data on every property market sector within one general database, this is impractical if records are to be comprehensive. Initially a NVED would record only office comparable evidence expanding to eventually cover all property types (See chapter 8 for a full explanation). It would be too time consuming to separate all office data from each system and then enter this data into a national database. The only feasible method of combining private sector databases is to encourage each private sector firm to adopt a standard software platform utilising a uniform database structure and set of recording standards prior to data release and pooling.

Comparable evidence quickly becomes out of date and unusable, the length of time before its usefulness expires depends upon the type and state of the market, but generally any comparable evidence recorded over 6 months previously, (according to the results of the main survey) can be discounted. Encouraging the adoption of a set database structure and standards around 6 months before data release and pooling or the implementation of a NVED would allow each private sector firm to collect 6 months worth of comparable data, recorded and stored in a uniform format. Downloading each separate database to a central database or networking all these separate databases and permitting other firms access would produce a workable national system containing the last 6 months worth of private sector comparable data. All new transaction details would be recorded directly into the national database and therefore accessible immediately. An archive database would contain

historical data as such data is useful in the production of rating valuations and trends and statistics for example.

The implementation of NVED technology in all database holding PPSP and the introduction of the technology to PPSP who do not have existing computerised databases will ease the transition from fragmented closed comparable systems to an open, nationally accessible system. Assuming all firms agreed to data release and pooling and to adopt a uniform database prior to the implementation of a NVED, the construction of the NVED is simply a combination of these databases. If firms record data in accordance with the standards accompanying the database then allowing access to a national system would greatly increase the availability of comparable evidence.

6.4 How would an NVED operate?

This section looks at the more technical aspects of a NVED system. It discusses who would actually record the data onto the system and how the system would be organised in terms of accessibility. It sets out several possible networking options and discusses the advantages and disadvantages of each before making recommendations as to which option is preferable. The actual NVED software and recording standards are examined in chapter 8 but this section assumes that any NVED system would use the database developed during this research.

6.4.1 Who records the transaction data?

Once complete, the details from any transaction are recorded onto the NVED system. Does the acting surveyor record the transaction details personally or pass the details onto a secretary or specialist data entry clerk? It must be the surveyor who personally records the transaction data for the following reasons. The surveyor is the individual most familiar with the value characteristics of the property. He/she has perhaps produced a valuation for the property, has almost certainly carried out an inspection of the property and has knowledge

of its lease terms and marketing history. No other person will have such detailed first hand knowledge. Following a transaction it would be easy for the surveyor to sit in front of a PC and record the transaction details directly onto the NVED whilst they are still fresh in the memory. If the surveyor writes down the details for a clerk to record this not only wastes time but the clerk may misunderstand what is written down or guess at an entry when the surveyors details are unclear. The use of two individuals to record comparable details increases the possibility of data inaccuracies.

As there are usually at least one PPSP advising each party to the transaction a problem arises concerning who actually records the data. Is it the surveyor acting for the landlord or vendor or the surveyor acting for the tenant or purchaser? If both parties were to record these data the result is data duplication which is inefficient and causes problems when retrieving records as there would be at least two records for each property. A possible scenario is that one party records the comparable record and the other party checks the record for accuracy before the record is release onto the NVED. Again this is an inefficient way of entering data, increasing effective recording time and providing an excuse for surveyors to avoid spending time recording data. Transaction details are facts as they have actually occurred, lease terms have been agreed, and a capital price paid for example. If recording standards are correctly followed there should be no difference in how two different parties record transaction details. It would only be where a surveyor did not achieve favourable terms during negotiation that he/she may then disguise the true facts to avoid embarrassment. This is a case of dishonesty rather than recording inaccuracy which any system would find difficult to identify and account for. In such a case the data recorder should be liable for any loss caused by these deliberate inaccuracies. It is up to the other parties, if sceptical about whether data was recorded correctly, to check the comparable evidence record and insist on corrections if appropriate, however this should rarely be necessary.

Only one party should therefore record the transaction for reasons of time and efficiency but which surveyor should this actually be? As long as consistency and accuracy are assured it

should not really matter as long as the details are actually recorded. All parties are equally aware of the majority of the transaction details but there are certain factors which only the landlord's or vendor's surveyor is aware of. For example only the surveyor acting for the landlord would be aware of the marketing history of the property. When recording details of the tenant covenant the tenant's surveyor may provide a biased view. These two reasons are sufficient for the decision that the landlord's or vendor's surveyor should record the data but there are other, more complicated reasons. Where a building owned by one landlord is let on multi tenancies there may be one surveyor or surveying firm acting for the landlord and one surveyor acting for each individual tenant. In this case the building details are constant and only the details of the individual tenancies will vary. If the landlord's surveyor recorded the details, the building details need only be recorded once with individual tenancy details linked to the single record of the building details. With one surveyor recording all the tenancy transactions consistency is achieved and data duplication avoided. Tenants recording transaction details will each have to record the building details separately leading to, for example, 5 full records instead of, more efficiently, one base record linked to 5, less detailed, tenancy records.

In summary, to increase the probability of data accuracy and the avoidance of data duplication, the surveyor acting on behalf of the landlord or vendor should personally record the transaction details onto the NVED system for use by the profession as comparable evidence.

6.4.2 How would surveyors access the NVED?

Surveyors will need quick and easy access to a NVED in order to record transaction details onto the system and also retrieve comparable records. If access were difficult, slow, unreliable or a combination of the three, surveyors may prove reluctant to use the system. To encourage its use, the NVED must be organised in a way that couples efficient access with the minimum difficulty. The system must also ensure security to allow only property

professionals access these data and prevent any other parties that may be interested in the data, for example office furniture salespersons, acquiring them.

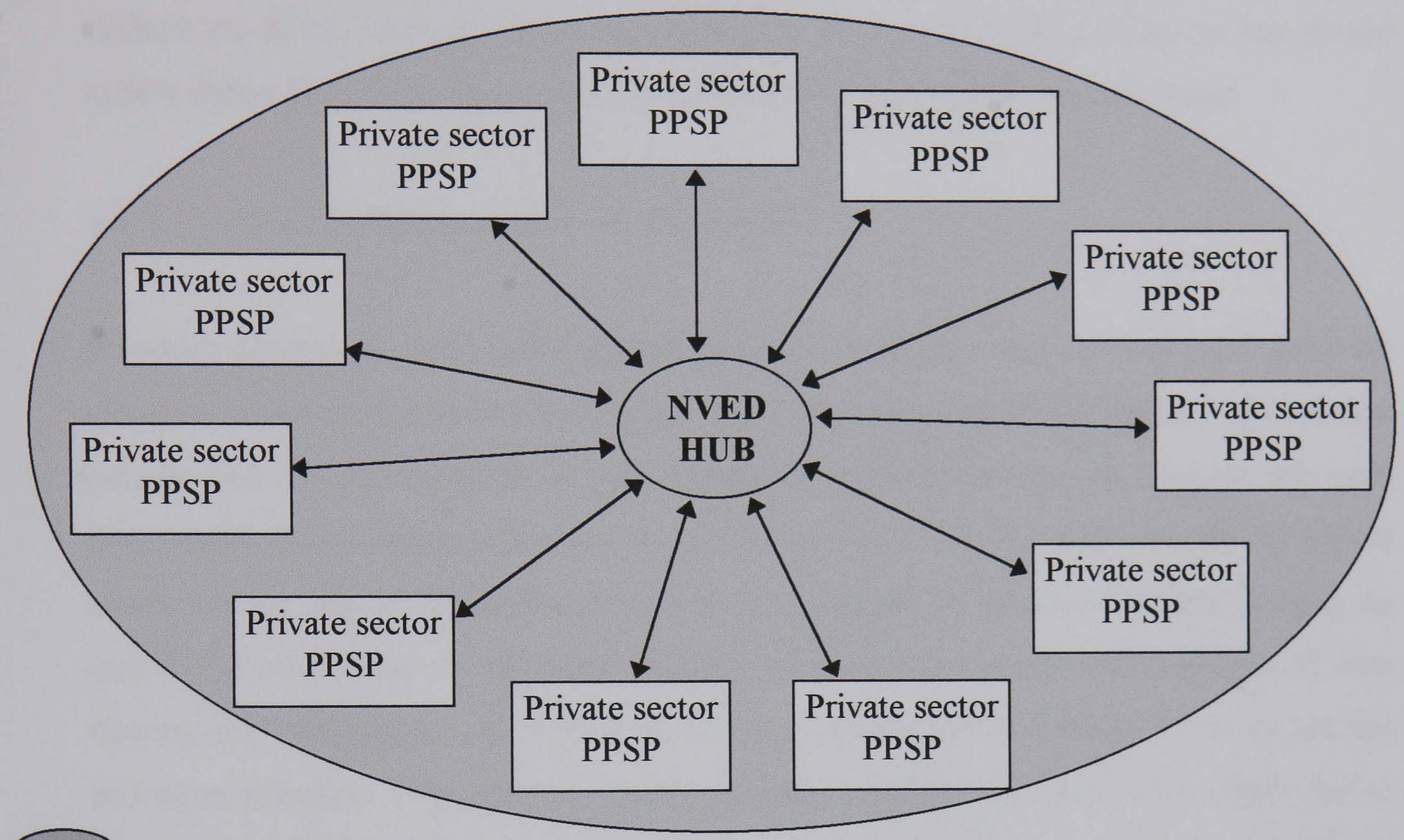
There are three possible ways to organise access to a NVED and these are described below. Although the ideas appear in reasonable detail they need a great deal of further research, outside the scope of this thesis, before implementation would be possible.

6.4.2.1 A network of private sector databases.

Assuming that all private sector PPSP adopted the NVED software and standards it may be possible to network all the individual private comparable evidence databases. Those PPSP without computerised databases would be expected to either introduce a database system, introduce a database sharing scheme with other PPSP in a similar position or expect to be excluded from the system for not providing data. If a PPSP does not possess a database system, and this is true for all the possible network organisational solutions, then the NVED would not record any transaction within which that PPSP acted for the landlord/vendor. This would reduce the efficiency of the system. If PPSP wish to access the NVED then they must contribute data to it. The fail-safe is that PPSP will need the appropriate technology to access the data and this same technology is used for recording the transaction details so if a PPSP can access the data there is no reason why it cannot also record data. Once all PPSP possess the database software it is then necessary to link all the separate database systems. It is likely that the larger PPSP that possess many departments and many PC's will already have a networked system so could store the NVED software on an appropriate server serving the whole office or even, if the entire practice is networked throughout the country, every office of the practice. Internal surveyors could then access the firm's databases via the server and other surveyors could gain access to that practices' comparable evidence from the same server. Security measures would need to be put in place to ensure surveyors could only gain access to the relevant software on the server otherwise they may be able to obtain other data not meant for public viewing. It would be necessary to connect the servers of all PPSP, or if they do not have servers, individual PC's,

to form the networked NVED. There would be a requirement for a central hub mechanism to control access, administer pricing mechanisms and deal with query searches. The set-up could resemble the diagram below.

Figure 6.1 NVED: A network of private sector databases



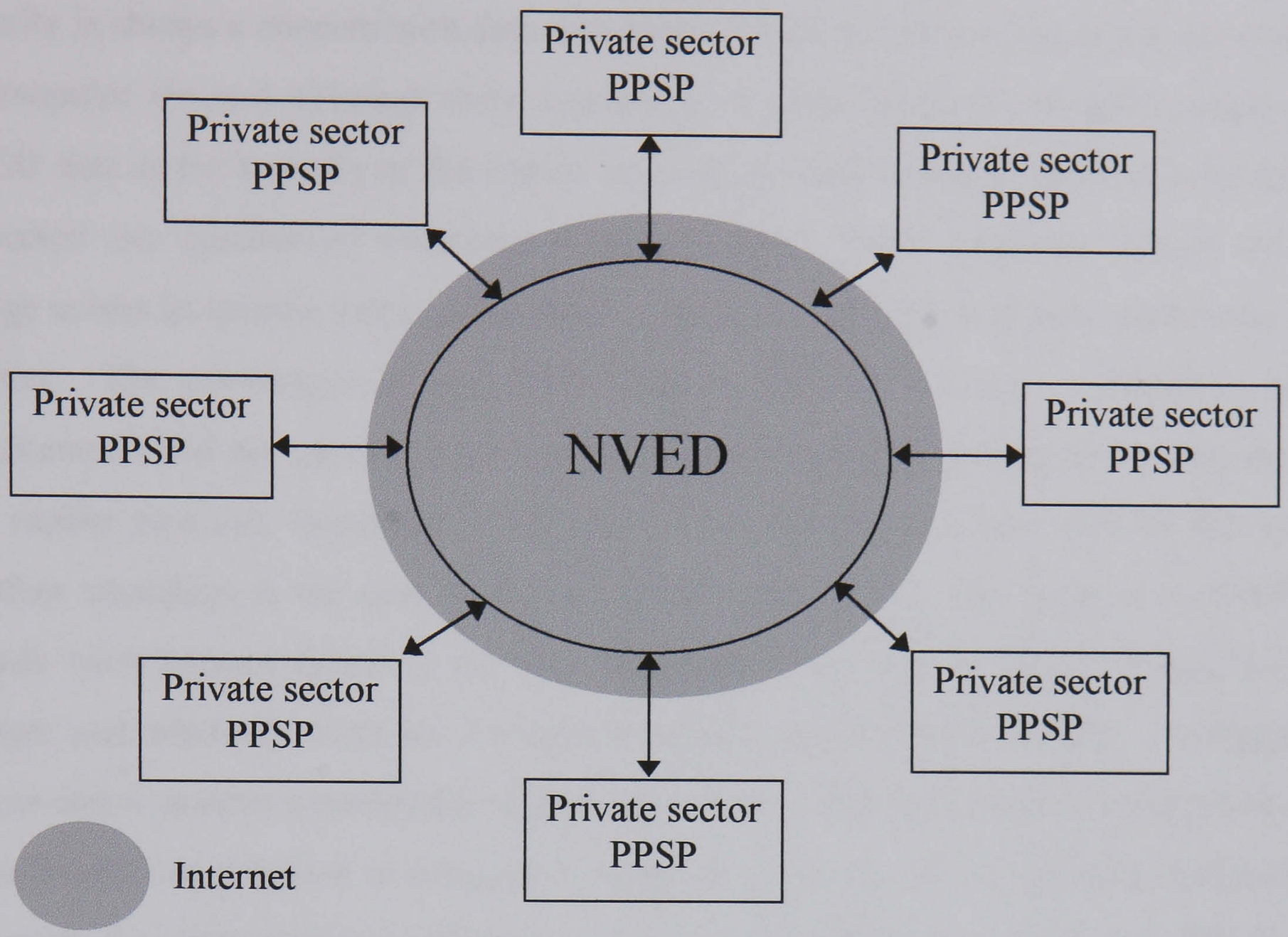
All the private sector databases are linked to the central NVED hub. The hub itself does not store any data just arranges the transfer of the data to and from the appropriate locations. The hub will access each individual database, when appropriate, and query searches would also be directed through the hub. If a surveyor wished to retrieve comparable data then he/she would enter the search criteria on the PC and the search request sent to the hub. The hub would then have to search each individual database system for items of comparable evidence that satisfy the search criteria. It would then assemble the evidence and return the search results to the querying PC or PC via a server. Technically this method is extremely inefficient, slow and expensive. Accessing every single database, of which there may be hundreds, would be extremely time consuming and the expense of accessing each individual

database immense rendering query searches uneconomic. The speed of the search would depend very much upon the speed of the network links and the hardware storing the database. The expense of actually networking each surveying firm using direct links to the NVED hub would also be prohibitive and would probably only be effective on a smaller scale, for example between the servers of a number of the larger PPSP or for a LVED. This method would have the advantage of security as PPSP would have access to this closed system although networking so many individual PC's could rapidly spread viruses.

6.4.2.2 A central NVED accessible via the internet.

It would, perhaps, be more viable in terms of cost, to utilise a network that most firms are already connected to, that is the internet, to provide access to a NVED. Instead of each firm holding their own comparable evidence in-house and allowing access via a central hub, each firm would record transactions onto a central database. In this case the NVED allows access via the internet but access is limited with a password system to protect security so only PPSP may access to the data. Access to the NVED permits the recording of data directly onto the system. As all data is on one database, query searches are much quicker and more effective. The surveyor can enter search criteria and the NVED simply has to search for matching items in one database rather than numerous. The diagram below illustrates the possible organisational structure.

Figure 6.2 A central NVED accessible via the internet.



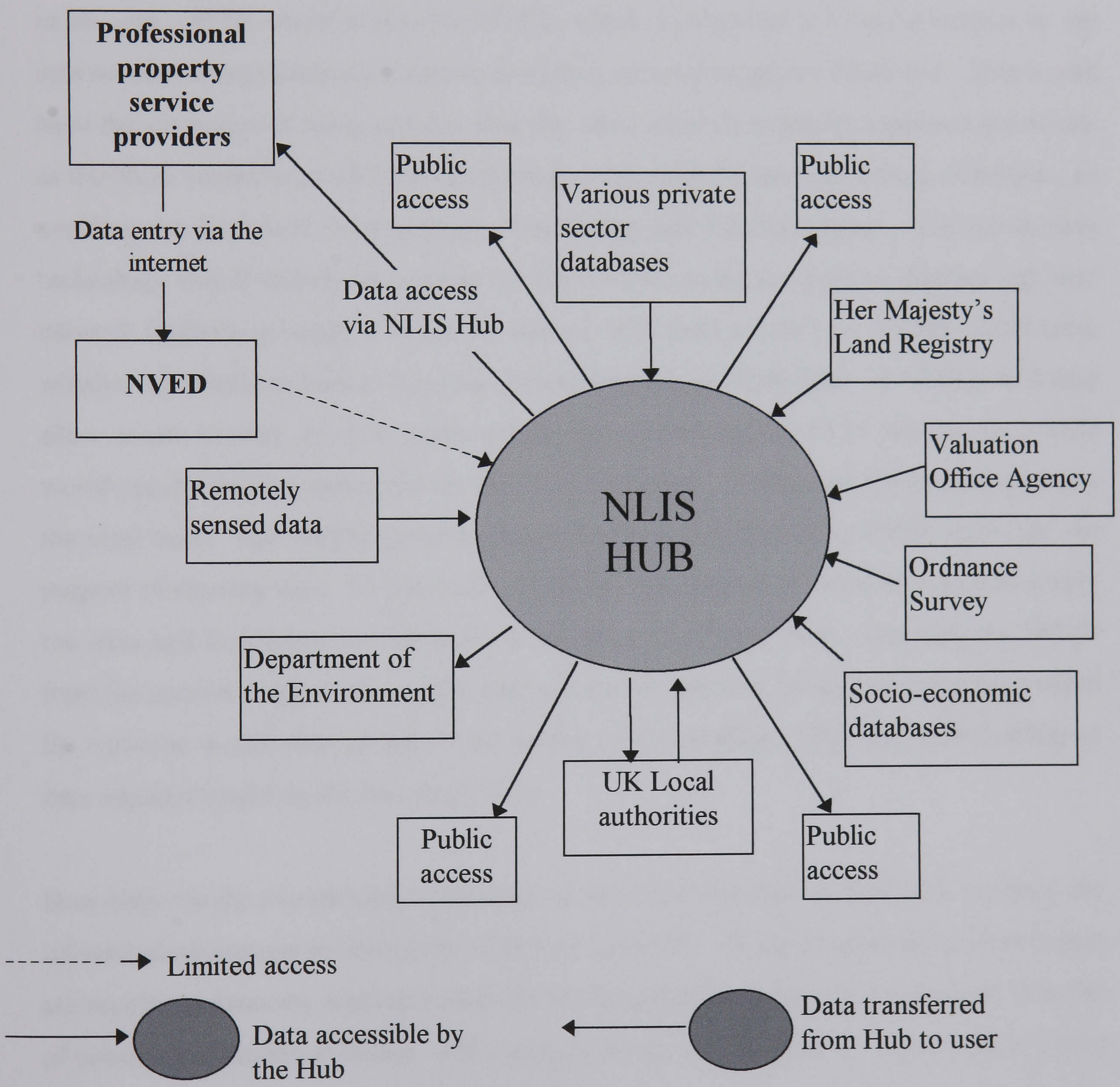
PPSP can access the database from any PC that is connected to the internet. Entering the appropriate URL would access a security screen requiring a password for entry to the database. This will help ensure security and protect confidentiality. Surveyors could then either record, view or search for comparable evidence depending upon the option they choose. As with other internet data-sets, once a request is sent, the information has to be downloaded to the user's PC. The speed of the download depends upon the quality of the modem, the quality of the hardware and software serving the internet site, the type of network connection and the volume of internet 'traffic'. If the NVED was stored on a powerful machine with efficient software serving the site, then the speed of any query searches should be sufficient to prevent frustration. The disadvantages of such a set up are common to any data set accessible via the internet. Accessing sites and downloading data is extremely slow at busy times of the day due to the sheer volume of use. With many surveyors requiring access to the data at similar times, query searches may become too slow

to be effective. There is no way around this problem until access to the whole internet becomes quicker through the use of ISDN links and the expansion of fibre optic cabling. Security is always a concern with data-sets accessible on the internet (as is the susceptibility to computer viruses) although there appears to be little benefit in illegally accessing the NVED data as the majority of the data is not commercially sensitive and would be difficult to exploit any commercial advantage from such data. Other problems include trying to charge access to specific items of data but this issue is dealt with in greater depth later in the chapter. The advantages of organising data in this way are that E-Mail is usually instantaneous and any queries a user may have can be E-mailed straight to the data recorder and replies received, hopefully, while the user is still logged onto the NVED system. Another advantage is the cost of setting up the system. The only expense to PPSP who already have internet access is the cost of accessing the data in terms of telephone line charges and whatever costs are incurred accessing specific items of data. A single data source makes queries considerably quicker and cheaper with maintenance straightforward as there is only one database to administer, although if there is a fault with this database then obviously the whole system is affected. It is also extremely easy to allow new PPSP access to the data with only the allocation of a new password necessary. Another important question is who controls, maintains and generally runs the NVED which stores and allows access to such large quantities of data. Such a large database needs a database manager and a technical team to overcome any problems that may arise. Previously, each individual firm was responsible for the management of their own system but now it would be necessary to appoint or set up a controlling organisation. This question is also relevant for the final network example and is discussed in detail later in the chapter. Even after its problems, this method is preferable to a network of individual private sector databases because it would be cheaper, quicker and more efficient.

6.4.2.3 A data-set of the National Land Information Service (NLIS)

As a NVED will hold property data in the form of transaction details it seems entirely appropriate to link the NVED to the NLIS and allow access to the NVED as a data-set of the NLIS. The diagram below illustrates how this could work.

Figure 6.3 NVED: A data-set of the NLIS



In the NLIS each property data holding organisation will continue to store and maintain their databases but the databases are accessible to any user at any time. Unlike the scenario where every PPSP holds their own data, this structure will work because the number of data-sets is vastly smaller and the resources of each data supplier are that much greater that system resources will ensure quick and efficient data transfer. The NLIS hub organises and permits data access but the hub itself stores no data. Property data queries are sent to the hub which then retrieves the relevant data from the appropriate database and sends the data to the user. PPSP would access the NVED, which is organised in a similar manner to the internet access organisational structure described above, through the NLIS hub. This would have the advantage of being quicker than the other network examples explained previously as the NLIS would be an on-line system independent from the internet, a form of intranet, so avoiding the associated disadvantages of accessing data via the internet. The networking technology would already be in place so the NVED would not have to develop any new network facilities although it is not yet known what form access to a NVED would take, whether via telephone lines or a quicker alternative such as ISDN links. A NLIS would only allow access to data, no data could actually be entered via the NLIS hub so the NVED would require another means for surveyors to enter data. In this case the internet provides the ideal tool. The NVED could be accessible from the internet to PPSP solely for the purpose of entering data. As previously explained, querying via the internet would be simply too slow and frustrating but this need not be the case for data entry. Accessing the NVED from the internet using a password would present a transaction details data entry form which the surveyor would then complete and submit to the database. The only downloading of data required would be the data entry form.

Data entry via the internet and data access via the NLIS may appear inefficient but there are substantial advantages to linking the NVED to the NLIS. As the diagram above shows there are numerous data-sets accessible from the NLIS which are beneficial to surveyors in terms of providing valuation evidence. For example, during data collection, valuers could obtain comparable evidence from the NVED and, at the same time, access relevant valuation

evidence from sources such as the Land Registry; data on boundaries, ownership and easements, planning data from Local Authorities and economic and market commentary from various socio-economic databases. The NLIS would provide the majority of the valuers secondary evidence from the same point of access as the NVED, the PC. Other advantages include the map basis of the NLIS when this is eventually included and the ease by which valuers could have access to other on-line data-sets such as the FOCUS intranet and the Experian-Goad system (See Figure 7.1 for the future of valuation data collection). Direct access to the NVED is possible but access is also possible from the map display of the NLIS. A map of the locality surrounding a subject property may help identify possible comparable properties, certainly comparable in terms of location, and clicking on any property on the map would provide certain details of that property such as address, ownership and size for example. A direct link to the NVED would access any comparable evidence stored for that property. The NVED could also take advantage of the pricing mechanism used by the NLIS hub. This method of NVED access does provide problems of security and there would have to be limited access to the database, possibly using a password system again to prevent public access to the data. There is also the disadvantage of the NLIS not due to be fully operational for several years whereas functional NVED is perhaps possible before this time. Such a time-scale may be appropriate, however, as it could take this long for the profession and their clients to agree to data release and pooling.

6.4.3 Pricing mechanism and revenue distribution

There are several reasons why there needs to be a charge for data accessed via a NVED. Firstly; there must be a way of paying for the maintenance and upkeep of the system, secondly; there should be a way of limiting the time spent logged onto the system to avoid congestion and finally; PPSP need an incentive to actually record data onto the system and the possibility of obtaining payment might be sufficient. There are several possible methods of charging for data access. This section outlines these possibilities and briefly describes how they would work but the pricing system requires much greater consideration and research closer to the time of NVED operation.

The pricing and revenue distribution mechanism would depend largely on the organisational structure of the NVED, whether the NVED is a data-set of the NLIS or a closed, stand alone on-line system. Firstly If the NVED is indeed a data-set of the NLIS then it can utilise the basic pricing technology set up and adopted for this information system. The pricing mechanism of the NLIS has still to be determined but it is likely that the central hub will charge the user for access to a particular data-set, either by time spent accessing the data-set or per unit of data downloaded. The fee paid would then be passed on to the data holder, probably less a standard percentage to cover the up-keep, maintenance and administration of the hub mechanism. The situation with regard to a NVED is more complicated as there are numerous PPSP which provide data to the data-set instead of just the single data holding organisation which is the case for the other data-sets in the NLIS. A user could be charged for accessing data but then the fee would have to be split up and divided in some way amongst those firms whose data were actually accessed, the proportion of the fee depending upon the amount of that PPSP data used. This seems far too complicated and costly to administer so alternative solutions are required.

A possible solution is that when the NLIS hub charges the data user for access the charging mechanism would be based on either time spent accessing the data-set or the quantity of data downloaded. There are advantages and disadvantages to both charging mechanisms. The first option, users being charged a fee for the amount of time spent logged onto the NVED system is the simplest of the two. The hub would record when the user logged into the NVED database and the time the user logged out and, with a set charge per minute, maybe variable depending upon the time of day, the total charge is easily calculable. A bill may then be sent to the user every month laying out the charges made and the total amount payable. The advantages of this charging method are:

- Charges are simple to calculate.
- Administration is easy as it is only necessary to record the times a user logs in and out of the system.

- Users will not remain logged into the system when they are not using it, as this would prove expensive, so this reduces system congestion.
- Charging by time encourages efficient use of the system. Users are encouraged to use query searches to save time as opposed to looking through individual records
- As there is no charge per data unit then as much data as required may be downloaded for no additional cost so not limiting the amount of data it is viable to collect.
- Charging rates which vary depending upon the time of day may help prevent peak time congestion and enable smaller firms to use the system at a reduced cost.

Disadvantages include:

- Users may hurry through data collection to save money so may miss quality comparable evidence available.
- Accidentally forgetting to log off the system would prove expensive.
- If the system was slow, due to congestion, and it took longer than normal to download data this would increase costs with no fault on the part of the user.

The other method of charging for data access involves billing the user for every unit of data downloaded from the system. This is much more complicated than charging per unit of time and the most efficient way of organising such a method needs substantial research. A possible solution is charging the user a set rate per megabyte of data downloaded for the system. So for example if a query downloaded data from the NVED to the user's PC and the quantity of data were 250,000 kilobytes then the user would be charged the rate per megabyte multiplied by a quarter. The hub would need to keep a record of exactly what data each user downloaded and the size of the download to calculate the cost per session and bill the user directly. Alternatively, and perhaps more simply, the user could be charged for each action he/she asked the database to perform. For example if the user wished to view all records in the system then the hub would charge a set fee for this action or if the user wished to undertake a comparable search then the hub would charge a set fee for each comparable search with a similar process repeated for printing records and producing

summary reports. The hub would total up all charges for the user's session and bill the user perhaps weekly or monthly.

There are common advantages to both methods of charging per unit of data:

- The user may remain logged onto the system for any length of time.
- Users are not penalised for the slow downloading of data.
- The use of efficient query searches is encouraged.
- Users are discouraged from regularly downloading large quantities of data which would significantly slow the performance of the database.

Disadvantages are:

- The method is complicated and difficult to administer.
- Users may either use one very specific query search and miss relevant records or one very general search and spend a great deal of analysis time searching through these data when it should be the database that does this.
- A PPSP may download all the data onto their own system once a week or month to save money and reducing the revenue created by a NVED.
- Query searches should be used in increasingly detailed stages to get the most out of the system and this pricing mechanism penalises this method.

Between the two methods, charging per unit of time seems to present the most advantages but, most significantly, it is far simpler and cheaper to administer. The method used by the NVED will depend largely upon the charging mechanism finalised for the NLIS.

An alternative way of pricing could involve a simple subscription fee payable by each PPSP using the NVED. Each PPSP would pay a monthly or annual subscription fee, the amount of which would depend upon a variable such as the size of the firm calculated by the number of employees, for example. This subscription would cover all access charges for that period reducing administration costs and provides easily the simplest charging mechanism. Such a

mechanism ensures the fair treatment of smaller firms who would perhaps not be able to afford to use the system effectively with the other charging mechanisms.

Of course another option is to charge no fee for accessing the data but this would provide a number of problems. There would be no money available to pay for the maintenance and upkeep of the NVED hub mechanism or central database, firms would not believe they were gaining any benefit from entering their data onto a system which would not be the case if they were receiving some revenue from their data and if this proved to be the case firms may be reluctant to spend time recording data. Users may remain logged on to the system for long periods of time or perhaps regularly download all the data. This would slow up the system considerably, prevent other users for logging on if there were a limit to the number of users permitted at any one time or infringe copyright.

Once a charging mechanism is in place then the revenue generated by the NVED needs to be divided between the firms that contributed comparable evidence to the database, after administration and maintenance costs are removed. There is no way of knowing at this stage the level of revenue that the system would generate after costs but any revenue must be fairly divided.

There are two ways of dividing resulting revenue between PPSP. The revenue could be split evenly between all data contributing PPSP. Every PPSP would then receive some sort of revenue which would offer some encouragement to keep recording data. This would be unfair to the larger PPSP that provide the majority of the data as they would receive the same revenue as a PPSP that provided, perhaps, only one comparable record. To make the process more equitable it would be preferable to divide the revenue received for the whole NVED system per month, by the percentage of the total data contributed by a single PPSP. For example, a large London practice may contribute $^1/_{50}$ of the total data so would receive $^1/_{50}$ of the total NVED revenue. It would be easy for the NVED hub to keep track of the quantity of data entered by each PPSP and therefore calculate individual payments. This not only rewards PPSP for entering data but also encourages PPSP to make sure that all data is

actually recorded by surveyors and entered onto the system. Resulting revenue could be paid directly to the PPSP or, more likely, taken off the monthly bill for the NVED services.

6.4.4 NVED data holding organisations.

If a NVED were based around a single, central database it would be necessary to establish not only a location for this database but also an organisation to store these data, maintain the database and administer the hub. With a database the size that a NVED may assume, the software and database structure will need careful maintenance and regular upgrading. With any network technology there must be a support team on hand to repair the system in case it 'crashes', re-establish on-line links and ensure the smooth running of the hardware and supporting software if access is via the internet.

In the case of a LVED one of the participating firms could hold the data and charge subscriptions to cover maintenance. There would be little point setting in place complex charging mechanisms for a local system as it would be easy to establish who accesses the system with a limited number of users, so a subscription mechanism should cover the expenses of the data holding firm. Of course there would need to be set in place a concrete agreement that the data holding firm could not prevent other participating firms accessing the data under any circumstances as this could lead to the data holding firm securing a data monopoly. Even for a regional system, the number of participating firms should be small enough, and the database itself small enough, for one of the larger participating firms to hold the data and use subscriptions to pay its IT support staff to administer the database. Problems will arise when the database becomes too large with too many users so that a subscription system no longer is feasible and a more complex charging mechanism is necessary. This is when an independent data holding organisation is required. A independent data holding organisation would need to have the support and co-operation of all participating firms and would need to be independent so it would have nothing to gain by restricting access to certain users.

A national system would, therefore, require an independent data holding organisation, preferably one with experience of holding large data-sets. The database and on-line access mechanism, and its associated maintenance, would require a specialist support staff dedicated to the system. Payments for staff and maintenance costs would come out of the revenue received from subscriptions to the system, or more likely, deducted as a percentage of revenue payable to each data provider. It would be prudent to utilise an organisation that currently specialises in storing and allowing on-line access to property data to administer the system. Property Intelligence Plc have a great deal of experience in this area with their FOCUS and related database systems and would seem the ideal candidate. When approached during pilot interviews, representative of Property Intelligence Plc expressed an interest in the idea and certainly a willingness to discuss the possibilities closer to NVED implementation. Investment Property Databank (IPD) also deal with large volumes of property data so are another candidate for administering the system and, when approached in a similar manner to Property Intelligence Plc, also expressed an interest. Of course such an organisation would have to make a profit from the NVED so access charges may have to be greater than if a participating firm volunteered to administer the system, which is also a possibility, although such an volunteer is unlikely unless it had something to gain.

The advantage of using an existing organisation is the low cost of setting in place the NVED technology. Setting up a new organisation would require not only a new location for the organisation but also completely new hardware, software and networking technology such as ISDN links. This increases the costs of a NVED which the participating professional property service providers would have to meet. A profit making organisation will already have in place the majority of the technology reducing start up costs for PPSP, probably at the expense of higher access costs to include some level of profit. This does, however, seem the logical and efficient solution. Whatever the case, a central database requires the adoption or setting up of a data storage, maintenance and administration organisation. This is another issue in need of further research closer to NVED implementation.

6.4.5 NVED technical summary

This section has described possible ways to allow access to a NVED and concludes by recommending that the most suitable and beneficial method is to enter data to the NVED via the internet but allow access to the data via the NLIS. This has the advantages of speed and efficiency allowing the surveyor access to numerous other relevant data-sets at the same time. There is the problem of the time-scale though. Prior to data release and pooling, the time-scale of which is impossible to estimate, many firms may wish to take the initiative and develop their own local valuation evidence databases through agreement between local firms to share data. This will set in place the technology for data access and it may be the case that LVEDs identify alternative ways of allowing data access. There is no reason why a NVED developed as a combination of LVEDs cannot become a data-set of the NLIS at a later date. As long as all databases containing comparable evidence are based around the same structure and standards then networking technology can be suitably introduced in whatever format at the appropriate time.

6.5 The Valuation Office Agency

The Valuation Office Agency (VOA) holds details of every rateable hereditament in England and Wales. This includes details of all commercial office properties with data on ownership, passing rent, size and use. The property details are collected in the form of returns filled in by the occupier of the property and stored at the VOA. Access to these details would be of some use for comparable evidence purposes. There are reasons though why VOA data is not ideal for comparable evidence purposes, the main one being that the returns are only updated every five years, so the rating evidence is out of data for all but a short period of time. Secondly the records are reasonably comprehensive but they are details supplied by the owner or occupier of the property who may not properly understand what data the return form requires so may not be accurate. However, once a transaction occurs the VOA do receive transaction details.

> *"Whenever an interest in real or leasehold property in England and Wales is transferred on sale, or a lease for seven years or more is granted, the instrument effecting the transaction has to be produced to a district land registry or a stamp office, together with the form Stamps L(A)451 - the 'particulars delivered' form. This form, which records the details of the transaction including the property transferred, the seller and buyer, the interest and the consideration, is subsequently forwarded to the VO."* (Board of the Inland Revenue 1990)

This 'particulars delivered' form should provide reasonably comprehensive and accurate comparable evidence and is held in computerised databases at the VOA. Access to these data could, therefore, be beneficial to the surveying profession. However, all VOA data, apart from the rateable value of each hereditament are confidential. Aggregated statistical data are published quarterly but are of little use as specific comparable evidence. VOA data is not accessible for the reasons of confidentiality and the cost of actually releasing the data. The confidentiality of VOA data in England and Wales is assured by three pieces of legislation; the Official Secrets Act 1989, the Taxes Management Act 1970 and the Finance Act 1989.

The Chorley report (1987) examined the release of VOA data and recommended:

> *"...that there should be open access to details of land ownership contained in HMLR's Register of Title and to details of land and property transactions held by the VOA and the Valuations and Lands Office in Northern Ireland. The necessary legislation to lift current restrictions should be introduced as soon as practicable."*

Among the written evidence submitted by the VOA to the Chorley Committee was:

> *"If it (disclosure of information in respect of transactions in property) were thought by the government to be advisable in the interests of improving information available to the property market there would appear to be no further objection to including transaction evidence in a national register of property information."* Chorley report (1987)

So the VOA seems to have no objection to releasing data however prevailing Government policy prevents this data release..

Although the prospect appears unlikely, how would the release of VOA data affect the NVED? It would seem, at first, that there would be a great deal of data duplication between the two data-sets. With comparable evidence accessible from an open VOA database and the same evidence available from a NVED then it is possible that valuers would not feel it necessary to record data into the NVED as it will eventually appear in an accessible data-set. With gradually less and less data being recorded onto the NVED valuers would eventually ignore it and rely solely on the VOA database. This may be the likely scenario if the data within both systems were of identical quality and detail but would this actually be the case? The form completed for the VOA which records the transaction details and the rateable value data held by the VOA, contains the basic property characteristics such as size, rent or capital price, accommodation, use, general lease terms and ownership but the valuer requires other comparable details which would not appear in the VOA databases but would be recorded in the NVED. Items such as the marketing history of the property, the strength of the tenant covenant, detailed lease incentive data, yield data and specific lease clauses are all necessary to determine whether the passing rent or capital price paid truly reflects the true open market rent or capital price. Only a NVED would include this vital data. The VOA data would be useful in providing evidence for rating valuations and where a transaction does not occur on the NVED for some reason, although this should be rare. If the valuer is uncertain of the transaction details recorded in the NVED or wants further confirmation of the data accuracy he/she could refer to the VOA record. In fact the two database could actually be combined with the VOA recording the basic property characteristics and the firm involved in the deal recording the more specific items, how this could work in practice is open to debate.

The NVED would still operate effectively in the unlikely event of VOA data release and indeed the two databases could be complementary and accessible from the same point. Valuers could consult both sources to confirm data accuracy although this is inefficient and

some sort of data combination is preferable. This should be researched in more depth if the prospect of VOA data release becomes a realistic possibility.

6.6 The need for a standard NVED structure and set of recording standards.

During this chapter it has been continually emphasised that the easiest way to develop a NVED is to encourage private sector professional property service providers to adopt a uniform database structure and set of recording standards prior to data release and pooling. Once data release and pooling occurs, these standard databases can be easily combined to form a national database. Additionally agreements between firms can build local and regional systems eventually combining to form a national system. This research aims to produce a database structure and set of data quality recording standards which would be suitable for the basis of a NVED.

Without the adoption of standardised database software and structure the combination of data-sets becomes difficult, expensive and time consuming. The main aims of a database structure, apart from facilitating the pooling of valuation evidence, are dealt with in detail in chapter 8 but are, briefly, as follows:

- To secure the efficient, comprehensive and accurate recording of valuation evidence.
- To secure the efficient identification and retrieval of comparable evidence.
- To be easy to understand and use.

If the database can achieve these aims then any LVED, RVED or NVED will operate effectively as valuers will be familiar and comfortable with the technology and will be able to rely on the data contained in the database. The database structure must ensure that data are stored and linked in a logical and efficient manner which avoids data duplication. Records must be comprehensive and sufficiently detailed so the valuer does not have to search for additional data and, because of the requirement for such detail, the database must utilise data entry techniques which greatly increase the speed of data recording.

Even if the database structure used by each firm is identical this does not mean that the database will be used by each firm in an identical manner. If this were the case and variations in the data entered occurred, valuers could never totally sure of exactly what information the data entry was supposed to convey and that the data were accurate. A mechanism is required which ensures that all data entered are accurate and if two data recorders entered the same data the entry would convey identical information. The requirement is for a set of data quality recording standards that ensure data entered are accurate, comprehensive and do not vary in their meaning but at the same time are easy to understand and use. For example, when recording the size of the property different databases may record data in different ways. One may record the data in square feet and the other in square metres. One may measure on a gross internal areas basis and the other on a net internal area basis. The size figure entered onto the standardised database must be uniform for each record entry, that is recorded in the same units and measured to the same definition, although major definitions such as this should be covered by the RICS code of practice. The recording standards, if followed correctly, should ensure this. Guiding the recorder through the correct procedure for recording each data item will help secure the accuracy and uniformity of the data and hence the whole comparable record.

Without standards it is possible that two identical properties, at least as identical as properties can be, may be recorded in completely different ways by two different surveyors. For example one could record the area in square feet and the other in square metres or perhaps describe a lease term in conflicting language. Ensuring data uniformity facilitates the use of data searches. Standards are also necessary for the correct referencing of each property within the database. Properties are usually referenced spatially using their address which can provide problems of referencing accuracy, details of which appeared in section 3.4.2.1. British Standard 7666 (BS7666) is a standard for the use of the property's address for referencing purposes. It is discussed in more detail in the next chapter and aims to make sure that properties are referenced correctly by using a standard address format aimed at reducing referencing errors such as entering the incorrect street name or omitting part of the

address. Recording standards of the NVED will ensure compatibility with BS7666 and utilise other commonly used standards such as the RICS code of measurement practice to facilitate standardisation.

6.7 Survey results

One of the aims of the main survey research questionnaire was to investigate attitudes of valuers towards a NVED. Respondents were asked to indicate their reactions to potential advantages and disadvantages of the implementation of a NVED and the final question of the questionnaire asked them whether the implementation of a NVED would improve the valuation process. The responses to these two areas are discussed in the following sections with section 6.8 drawing together the whole survey research in order to discuss the feasibility of a NVED given the evidence collected to date.

6.7.1 The potential advantages of a NVED.

Section 6.2.1 discussed the potential benefits of a NVED to valuers in the production of a commercial office property valuation. During the questionnaire these potential advantages were phrased as questions to respondents in a form such as Will a NVED provide a single valuation evidence source? Respondents were asked to answer yes, no or maybe to the question as an indication as to whether the advantage would materialise in practice. The results are shown in table 6.1.

Table 6.1 Theoretical advantages of a NVED

Theoretical advantage	**Response (%)**		
	Yes	**No**	**Maybe**
Will a NVED provide a single valuation evidence source?	17	41	42
Will a NVED improve the efficiency of data collection?	44	8	48
Will a NVED improve the availability of comparables?	68	5	27
Will a NVED improve competition in the market?	15	55	31
Will a NVED improve the quality of service to clients?	39	17	44

The first question, will a NVED provide a single valuation evidence source, provided a mixed response. 41% firmly believed it would not, probably because the valuer must consult other sources such as those providing local and national market commentary, details of location and other externalities affecting property value. 17% thought a NVED would provide sufficient information on its own and 42% believed it might. Although the NVED would provide the majority of valuation evidence there is still evidence which must be collected from other sources to provide a context in which to place the comparable details. 44% believed a NVED would improve the efficiency of valuation data collection probably because it would provide a single access point for all comparable evidence reducing time spent collecting data from sources such as other local valuers. Only 8% disagreed with this. The use of comparable query searches and an efficient recording and storage mechanism should certainly reduce the time spent searching for specific items of comparable evidence.

68% thought pooling private sector valuation data into a nationally accessible NVED would increase the availability of comparable evidence as valuers could easily collect comparable

evidence from a database containing data other than just their in-house records. 55% did not agree that a NVED would increase competition between professional property service providers with only 15% believing the opposite.

When questioned as to whether a NVED would improve the quality of service to clients, 39% thought it would with 17% disagreeing believing it would make no difference. 44% answered maybe, probably requiring more evidence before they could respond positively or negatively.

Overall, respondents believed a NVED would increase the availability comparable evidence and improve the efficiency with which these data are collected. These advantages of a NVED would then lead to an increase in the quality of service to clients as valuations would be based on an increased quantity of objective evidence and increasing efficiency of data collection allows the allocation of more time to data analysis.

6.7.2 The disadvantages of a NVED

Respondents were asked to comment on the potential disadvantages of a NVED in the same way as they did for the advantages and the results are shown below in table 6.2.

Table 6.2 Theoretical disadvantages of a NVED

Theoretical disadvantage	**Response (%)**		
	Yes	**No**	**Maybe**
Will a NVED destroy a firms information advantage?	42	19	39
Will a NVED allow firms to operate in an area where they have no expertise?	41	14	45
Will a NVED allow London firms to operate throughout the country?	47	18	35
Will a NVED reduce the need for valuer skill?	14	61	25
Will a NVED reduce the number of small firms?	19	40	41

42% agreed that a NVED would destroy a firm's information advantage with 19% disagreeing perhaps believing that even though data were pooled, the firms collecting the majority of the data would still maintain an information advantage. With firms able to obtain comparable data in areas where they were previously unable to, they may produce valuations in these areas although they have no local market knowledge and experience, which many perceive as a vital component of a valuation. 41% believed a NVED would allow firms to operate in areas where they have had no previous experience with 14% thinking it would make no difference. In this case it is up to the existing firms in an area to improve their quality of service to ensure clients do not employ firms from outside the locality. A similar concept is whether a national database will allow London firms to operate throughout the country from their existing London headquarters. Many respondents believed they already did with 47% agreeing that a NVED could increase the market base of London firms. 61% responded that a NVED would not reduce the need for valuer skill. Although a valuer can obtain more comparables, the skill of the valuer remains in the interpretation of these comparables, 14% disagreed. When asked if a NVED would reduce the number of small

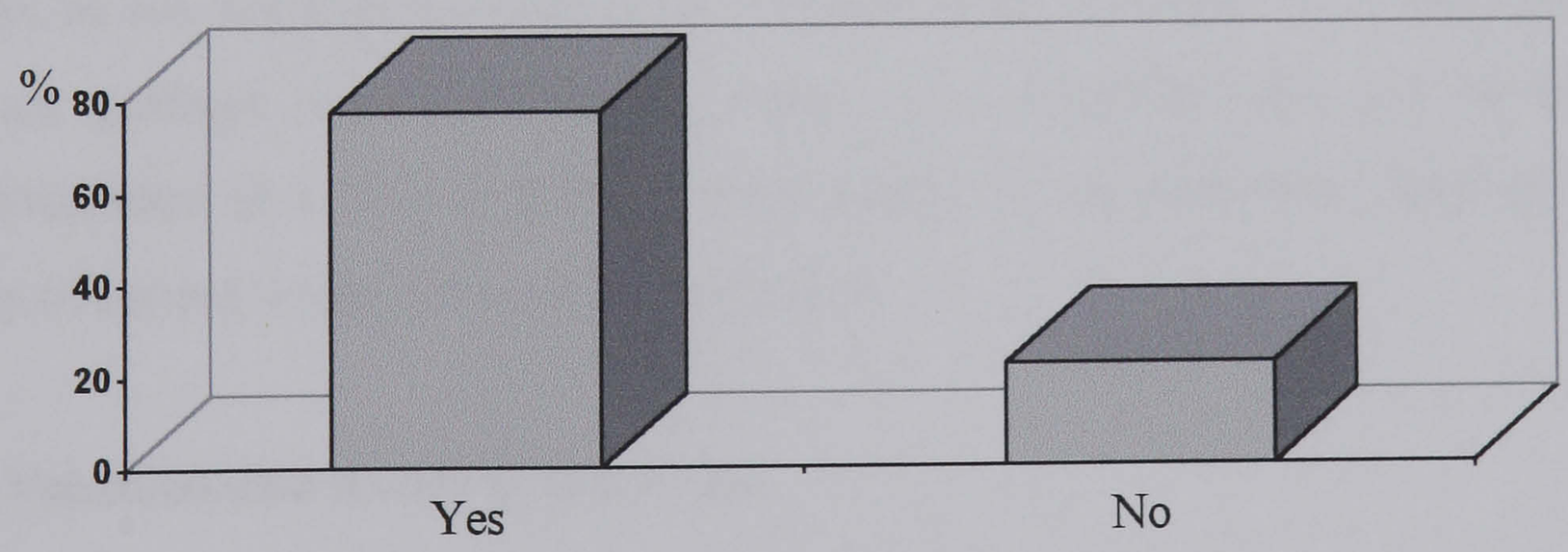
firms 40% thought the specialist advice and personal service offered by the small firm would remain an important part of the valuation profession, 19% disagreed.

The main opposition identified to a NVED surrounded competition between professional property service providers. Respondents believed the existing competition structure in local markets would change as firms could access data relating to that area and offer services to clients. If that is the case then it is up to existing firms to emphasise the importance of local market knowledge and offer improved services to clients it terms of both quality of advice and value for money.

6.7.3 Would a the implementation of a NVED improve the valuation process?

At the end of the questionnaire respondents were asked to decide whether or not they thought that a NVED would improve the valuation process. The question was deliberately scheduled immediately after the advantages and disadvantages of a NVED so respondents could base their decision on their own attitudes to data release and pooling and the potential affects of implementation outlined in the advantages and disadvantages question. The results of the question are shown below.

Figure 6.4 Would a NVED improve the valuation process?



78% believed that a NVED would improve the valuation process. A NVED would achieve this by improving the efficiency of data collection, increasing the availability of objective comparable evidence and improving the reliability of the final valuation figure. This is an extremely encouraging result showing strong support for the creation of a national database and also that such a concept could possibly work in practice but benefit the profession as well. There were no statistically significant relationships between location or firm type and a belief that a NVED would improve the profession so valuers from all types of firm are in favour of such a system. Further education concerning the benefits of a NVED can increase this figure. The figure of 78% differs from the 63% that were in favour of data release and pooling. This could be due to two reasons. Firstly attitudes towards data release and pooling and the creation of a national database changed throughout the questionnaire and, perhaps, particularly after respondents weighed up the potential advantages and disadvantages of NVED implementation. Respondents who could see no benefit to data release and pooling and so were against the concept may have been swayed by the arguments for a NVED and decided in would actually improve the profession. Alternatively, and perhaps a cause for some concern, is that 15% are against data release and pooling but do accept that the NVED would in fact improve the valuation process. This indicates that these respondents may be worried that data release and pooling would remove their information advantage and increase competition in their market so affect the profit levels of their business. They therefore accept that a NVED will improve the profession but would not like to see this improvement at the expense of their profits. It is this type of attitude, although perhaps understandable to many, that will hold back the development and implementation of a NVED and the improvement of the profession, both in terms of the quality of service it can offer and its reputation.

6.7.4 Valuation data recording standards

The main questionnaire survey also investigated the necessity for, and requirements from, any valuation data recording standards incorporated as part of the overall NVED. 70% of respondents believed that valuation data recording standards were a necessary requirement

of any national system. In order to develop appropriate standards, respondents were asked to identify the main priorities of such standards. They were given a list of possible priorities and asked to rank, in order, the top three. Weighted percentages were calculated from the results to allow the identification of the relative importance of each standard and the results are shown in table 6.3.

Table 6.3 Priorities of valuation data recording standards.

Priority of standards.	**Weighted percentages**	**Rank**
Ensure accurate data.	41%	1
Ensure the recording of all the essential comparable details.	25%	2
Ensure standards are easy to understand.	18%	3
Ensure data is uniform.	11%	4
Ensure data is referenced accurately.	5%	5

The primary priority of valuation data recording standards identified was that they should ensure that any data contained in the NVED are accurate so valuers can rely on data drawn from the system without having to check its accuracy with the original data recorder. Inaccurate data will lead to inaccurate valuations. The second priority was that standards ensure the recording of all the essential comparable details. If there are gaps in data records, valuers either cannot use that comparable record or have to contact the original data recorder for additional information. This will affect the efficiency of the NVED system. The top two priorities would aim to ensure that data are contained on the system in a form that could be taken straight from the screen without the need to obtain additional information.

The third priority was that they should be easy to understand and use. There is no advantage in developing over complicated standards that are difficult to understand and apply. Standards should be in plain English, efficiently guiding the recorder through the step by step recording of a transaction record. They should also be easily accessible, preferably on-line so the user does not have to constantly refer to a paper manual. Fourth, standards should ensure data recorded are uniform. Without this uniformity, query searches become difficult and recording slower and more complicated. Finally, standards should ensure that data is referenced accurately by address so that there is no confusion over what name or number a property is referred to by and the records are easily retrievable by address. This is partly overcome by the use of BS7666.

6.8 The probability of NVED implementation.

The main survey research provides sufficient evidence to allow an examination of the probability of a NVED being developed and implemented within the commercial office valuation profession. The development of a NVED relies upon the combination of existing in-house comparable evidence databases or the implementation of NVED technology in PPSP before a national system is created. The survey identified that those databases were the primary source of valuation evidence and the combination of these in-house databases would provide a nationally accessible primary source of valuation evidence. Such a database would provide valuers with increased amounts of, and easy access to, their primary data source. Respondents perceived the accuracy of the data contained in their in-house databases was good or better and so was the quality and completeness of their data, so combining existing data into a national system would in theory produce an accurate and comprehensive database. If in-house data were not accurate or complete then combining such databases would produce nothing more than a database containing scraps of evidence, the reliability of which is seriously open to question.

Of course existing databases record different data, in different formats using different software, often incompatible. Before it is possible to combine these databases, some sort of

standardisation is required. A NVED would have to set in place a database structure setting out all the data items for the surveyor to record from the comparable evidence. Also required are a set of valuation data recording standards for the recording of these data factors which will ensure the uniform recording of such data items so valuers are aware of exactly what the data convey. Such a structure and standards could be adopted prior to data pooling to ease the transition from separate systems to a NVED or after data pooling so all new comparable evidence is recorded into the new system. In combination with the National Land Information Service and electronic access to the property press via the internet, valuers could collect all their valuation evidence, apart from the physical inspection of the property and its environment, from a networked desktop PC or laptop.

Technically the NVED is feasible but does the demand for the system exist? Computer literacy in the profession is undoubtedly increasing rapidly and so is the use of on-line information sources. The introduction of a NVED is an obvious next step and with computer literacy levels improving, surveyors should be able to make good use of the technology. The results of the survey question asking respondents if they thought a NVED would improve the availability of comparable evidence provided a positive response. The question on whether there was sufficient evidence available to produce accurate valuations brought responses which differed depending upon the state of the market. Only 10% thought there was always enough evidence available and this was in a market with a high volume of transactions and market activity. (See section 4.6.4.1) The other 90% indicates a necessity to improve data availability as there is rarely always enough evidence available and certainly not enough in a flat market. Valuers are therefore, due to this lack of evidence, relying on their own subjective judgements and it can be concluded that an increase in data availability is necessary. The NVED is designed to, and should, fulfil this function.

If a NVED is technically feasible and would fulfil the vital role of increasing the availability of comparable evidence, do valuers actually require the system. With 63% actually in favour of data release and pooling which is vital for the creation of a NVED, it appears that the majority of valuers do. Barriers to releasing data revolve around confidentiality and

competitive advantage, two barriers that could be overcome with sufficient education and foresight. For voluntary data release and pooling to occur all the major decision makers in private sector PPSP, or at least the overwhelming majority, would have to be strongly in favour of the concept otherwise it would require some sort of legislation to compel data release. Such legislation is extremely unlikely and would almost certainly be strongly resisted, being seen as an erosion of the rights of property professionals. The unlikelihood of voluntary agreement at this time, although attitudes are changing, is the major barrier to the creation of a NVED. With 78% believing a NVED would actually improve the valuation process, it may be the case that some firms will have to sacrifice the concern they have over a NVED reducing their level of business in order to support data release and pooling. The 22% who do not believe a NVED will improve the valuation process have probably answered in such a way because they think a NVED would encourage firms to operate in areas where they have no expertise so actually increasing valuation error. In this case it is up to the client to select locally experienced firms so this does not happen.

An accurate, comprehensive and up to date NVED is entirely feasible from both the technical and demand levels. It is simply up to the individual PPSP, the major PPSPs and the RICS to collectively push for data release and pooling as without this there can be no NVED. The most effective way to do this is for a group of PPSP to form an agreement to release and pool their data and create a closed LVED type of system, on-line throughout the co-operating firms. The benefits, or otherwise would be there for all surveying firm to see, if properly reported. This may then encourage other firms to join the system building LVEDs into RVEDs and then RVEDs into a NVED. The important technical requirement in the gradual implementation of the system, is to keep all the separate LVEDs and RVEDs based on the same standardised system and set of standards so that eventual combination is immediate, straightforward and valuers are familiar with the technology. This is the reason for this research to develop a NVED structure and set of recording standards for use by PPSP. There is no reason why small scale data partnerships cannot be implemented immediately if clients are assured their data remains confidential between the participating

firms as the sooner data sharing commences the sooner improvements in the valuation process may be realised.

6.9. Data sharing in the surveying profession - work by Adair et al (1997)

In 1996 the RICS commissioned research to investigate issues surrounding property data sharing and release. This research was undertaken by the University of Ulster, University of Aberdeen and IPD (Adair, Berry, Deddis, McGreal, Keogh, Key 1997) the results of which were published at the 1997 Cutting Edge conference in Dublin. The research is directly relevant to the results obtained during this research project which were disseminated at the 1996 Cutting Edge conference in Bristol (Rowley et al 1996). The following sections outline the research findings by comparing and contrasting them to the results of the NVED research discussed in chapters 4, 5 and the previous sections of this chapter although there a few major overlaps in terms of specific questions. These sections also assess their implications for the development of a NVED system.

6.9.1 Research methodology

The research of Adair et al (Adair et al 1997) followed a similar methodological pattern to the field work of this thesis. It began with a literature review before progressing to structured interviews with data providers from both the commercial, development and residential market panels of the RICS. These structured interviews formed the basis of focus group discussions which embraced a representative cross section of data users, data owners and providers in the commercial property sector. The final stage of the research encompassed a postal questionnaire survey directed at commercial property sector surveying practices.

6.9.2 Results and implications

This section examines the results of Adairs' research and compares them to the results of this research project and also assesses their implications.

6.9.2.1 Opinions of data providers.

Initial interviews sought the opinions of the RICS and data providers such as the VOA, BCIS, Department of the Environment, local authorities, Land Registry, Ordnance Survey and IPD along with a number of surveying practices and representatives from the Estates Gazette Interactive (EGi).

During interviews there was recognition from all parties that the lack of available data in the property market inhibits the work of surveyors, and not just valuers as demonstrated during this NVED research. Data were considered to be available but not in a suitably accessible form, which was thought particularly apparent in relation to value and cost data. Data providers considered that open access to current and relevant data together with wider economic information would enhance general market performance.

Data sharing was viewed with scepticism by some due to the commercial interests surrounding the use of property data. This is entirely consistent with the opinion of the valuers surveyed during the NVED research, 37% of whom were against data sharing. However, significant shifts in attitudes towards the pooling of data are perceived to be occurring but some data providers are still worried that such a shift will only favour the large private sector organisations. The increase in favourable attitudes is encouraging and is again consistent with the NVED research which predicted that attitudes towards data sharing would become more favourable over time, perhaps due to increases in computer literacy and an awareness of the potential of the internet and other on-line services.

Computer technology and GIS were seen as vehicles to facilitate data collection, storage and manipulation and it was agreed that a common industry standard is necessary to identify and reference properties and this common base is critical to rationalising data access.

As far as barriers to data release are concerned, Adair et al identified two critical barriers in their structured interviews. These were the same as the main barriers to data release and pooling outlined in chapter 5 namely competitive (commercial) advantage and confidentiality (ownership) of data. The perceptions were that increased client expectations would be instrumental in the removal of traditional barriers thereby admitting that change will be externally rather than internally driven.

The results obtained by Adair et al relating to data sharing and pooling barriers were very similar to those gathered during this NVED research allbeit from two different sources, data providers rather than property valuers. Attitudes are certainly changing towards data sharing and release which is not only encouraging for the NVED but also vital. With such positive attitudes increasing what are the implications for the commercial property market?

6.9.3 Implications for the commercial property market.

Adair (1997) identified from focus groups that data owners and providers agreed that the property market is perceived to function with less information than other asset markets and does not possess an information culture. The development of a comprehensive property market computer system within a five year scale was considered to be a major step and it was agreed that there is an urgent need for an agreed industry standard for the collection and recording of data. This is an area that this NVED research explicitly approaches through the use of standardised recording procedures (see chapter 8). The focus groups commented that more dedicated data collection is required to produce a robust database and to permit faster reporting to clients. This is consistent with the potential of the NVED.

There were no objections to the wider availability of standardised data with value added to these data by the ability of the surveyor to interpret these data and report to clients. There was a perception, though this can be partially discounted by taking into account the results in chapter 5, that smaller firms are likely to question the desirability of data sharing.

Encouragingly there was an awareness that technology with regard to collecting and storing data is improving and there are increases in opportunities for property data users to be able to access on-line data-sets. These developments are likely to increase the expectations of clients thereby ensuring that systems must be implemented to take advantage of the technological advances.

Contrary to the opinion of valuers during the NVED survey, confidentiality was not seen as a major issue as so much property data is secondary in nature, but it was agreed that agents/advisers should only release data with the consent of clients. There was a common perception that market participants were unlikely to be concerned about greater disclosure of information provided there is a general application to all actors and transactions. This principle applies equally to the successful development of the NVED. Encouragingly there was agreement that Land Registry data should be publicly available with full disclosure of information on transactions, sales price and lease terms but legislation is not thought to be desirable to force disclosure of data from private sector data holders.

The advantages of data release and pooling were considered to include greater certainty and consistency of evidence which would be to the benefit of all market players. Indeed it was argued that the wider availability of information enhances market efficiency and increases recognition of business opportunities partially negating the prospect of smaller firms losing business with the opening up of specialist markets. The demand for professional services will increase in order to cover the greater array of identifiable opportunities and mirrors one of the main hypotheses presented throughout this thesis; increased data availability will increase market activity and hence the demand for the services of property professionals.

Adair et al identified a general agreement during interviews and focus groups that IT packages are becoming increasingly user friendly and the level of database technology improves the promise of efficient data sharing. However, there was recognition that standardisation of data-sets is necessary before an efficient and all encompassing system could be put into practice. Worryingly there was a belief that current internet technology is

'first generation' and may be overtaken by dedicated private networks. This is more than likely to be the case, but to wait for this new technology rather than utilising existing technology to its fullest potential would be extremely unwise. Competitors, such as firms of accounts and lawyers, will use this technology to offer services to clients thereby placing themselves in a stronger position than surveying firms in the existing technological climate and also when any new technologies are introduced. Without a working knowledge of current technology, property professionals will always be lagging behind their competitors in terms of understanding and training come the implementation of new technologies.

6.9.4 Survey of commercial property agents

The survey undertaken during the research of Adair et al included a postal questionnaire using a random sample of surveying practices throughout Great Britain. This contrasts with the complete coverage of four areas in the UK which was the sample used for the NVED survey described in chapter 4. Both sampling procedures used the Estates Gazette directory to identify general practice surveying firms. 300 practices were targeted, as opposed to 450 during this research, with 83 replies received, again compared to 138. Therefore a lower response rate was achieved by Adair et al (under 30%) than the rate of over 50% achieved for the NVED postal questionnaire for the areas of Newcastle, Leeds and Birmingham but higher than the 20% for London

No mention is made of the nature of non respondents in the paper so it is difficult to establish the applicability of the results to the profession as a whole. None the less it is interesting to compare the results of two similar surveys conducted in September 1995 and early 1997.

The results of the paper were split into five areas. These are examined in turn with particular emphasis placed on their implications for a NVED and how they compare with the results of the NVED survey research described during chapters 4, 5 and 6.

6.9.4.1 Principle of data sharing.

During the Adair et al survey no one question determined the percentage of respondents in favour of data pooling so it is difficult to make comparisons with the 63% in favour of the concept determined during the NVED survey (Section 4.6.5). Importantly though 61% thought that the work of chartered surveyors was inhibited by the lack of available data although 81% believed that much of the required data exists thus providing an indication of the practical difficulties experienced actually obtaining useful data. This is consistent with the results shown in section 4.6.4.1 which suggests that there is normally but not always enough data for the production of an accurate valuation and that the situation could improve.

77% of Adair's sample believe there is a need for wider market information and 72% that the market would function better as a result of this information. Again this is consistent with the 78% of respondents believing that a NVED, if fully implemented, would improve the valuation process, which, it is argued, would lead to an improvement in market performance.

Adair's survey provides encouraging responses in relation to the future impact of IT on data collection. Over 60% thought IT would reduce the difficulties of data pooling and that a database should provide limited but reliable data. 62% also thought transaction based evidence should benefit investment which is a major reason for the creation of a NVED. Generally both surveys show a favourable attitude of respondents to the principle of data sharing and how it could benefit property market performance.

6.9.4.2 Barriers to the pooling of information.

Respondents were questioned about the possible barriers to data release and pooling during both surveys. The results obtained were similar with confidentiality and competitive advantage (commercial interest) perceived as the greatest barriers. The Adair survey however differed by rating data accuracy the greatest problem, a barrier which did not

appear at all during the NVED survey. Respondents of the NVED questionnaire rated the accuracy of their main data sources between good and very good indicating a belief that the accuracy of data was not a problem. However, accuracy ratings did drop to below good in relation to data originating from outside the surveyors own firm. This suspicion of data from sources other than in-house may contribute to the worries expressed about the accuracy of data, if pooled.

Incompatibility/inconsistency of data was perceived as a much greater problem in Adair's survey probably because in the 16 month period between the two surveys surveyors have become increasingly aware of data storage techniques and capabilities and the fact that different systems are often incompatible. This is on top of the realisation that different organisations record and store data in different ways. Barriers could be now perceived as more technical in nature as opposed to mainly attitudinal problems identified during the NVED survey. Concerns are now being expressed over data incompatibilities and accuracy rather that the professions unwillingness to alter the status quo.

Adair's survey identified that 52% of respondents considered that there was likely to be an increase in information pooling in the future but that this will not be widespread in practice. 69% believed pooling of information for valuation purposes will be to a high level suggesting the creation of a valuation data system is a distinct possibility. 29% thought pooling information was unlikely to occur or will not occur at all. However, only 28% were certain that the pooling of property specific transaction evidence would be to a high level which provides cause for concern as transaction evidence should form the basis of the NVED.

6.9.4.3 Potential areas for co-ordinated action.

79% of respondents believed that major action is essential to standardise definitions necessary to facilitate the recording of accurate data. This is consistent with the high percentage of respondents during the NVED survey, again over 70%, who felt a detailed set

of recording standards to ensure data accuracy and uniformity are a pre-requisite of the NVED. 87% of Adair's survey believed a system of property level recording pitched at the individual property level would either be beneficial or highly beneficial. The more aggregated the data the less beneficial the data becomes.

6.9.4.4 Data sharing

71% of surveying practices claimed to subscribe to on-line information sources such as FOCUS and EGi. When questioned as to their involvement in data sharing agreements 49% described such involvement as to a minor extent with 29% having no involvement whatsoever. Only 22% have substantial experience in terms of data sharing and pooling. This is extremely low and obviously a severe handicap to the development of a NVED. It will be difficult to promote and then establish a data sharing environment within firms who have had no experience of the benefits of data sharing. Without agreements, initially at the local level, it is difficult to envisage a NVED in the near future. Encouragingly 66% of firms were of opinion that the policy of their firm will change appreciably in the next 3-5 years.

With regard to the perceived impact of wider data sharing 85% believed it would result in increased competition from other professions and also increase the quality of service expected by clients (84%). This equates with the 83% of NVED survey respondents who thought a NVED may improve the quality of service to clients and the 81% who believed data sharing would destroy the information advantage held by many larger property firms over their smaller competitors.

As well as encouraging competition 82% of respondents thought that opportunities would be created for niche players to add value to the increased amounts of data made available. Increased data availability may well allow firms to specialise in the collection of specific data and the provision of advice within these areas. Such niche players will add value to data thereby providing a quality of service previously unavailable within the market. Just over half of Adair's respondents thought that larger firms would benefit the most from data pooling, a result echoed in table 6.2 which shows 82% of respondents believing a NVED would allow London firms to operate within previously inaccessible markets.

6.9.4.5 The role of the RICS

There was a strong message conveyed by Adair's respondents that the RICS should use its educational role to provide awareness of data sharing issues and also take the lead in applying data standards, although this should be done in conjunction with other interested organisations.

6.9.5 Survey summary

Although the survey by Adair et al (1997) and the NVED survey cover similar ground there are few major overlaps in terms of comparative questions. Where comparisons can be made it appears that there has been progress on the issue of data sharing and firms are recognising its possibilities and implications not only upon their own firm but upon clients and the rest of the profession as well. Surveyors seem to be aware of the influence of IT on data collection and assimilation which is encouraging for the future. Data pooling barriers have shifted from attitudinal to more technical in nature indicating that attitudes are less conservative and surveyors are actually thinking of future data collection possibilities. However, Adair's results illustrate that data sharing agreements are few and far between and it is going to take a great deal of education and persuasion to convince surveying practices that this is the correct route to follow and that the inevitable consequence of such a route is the implementation of a national system for all property data of which a NVED would form part. Importantly surveyors believe that the RICS has a key role to play in terms of education and recognise that the implementation of standards for data recording and storage is an essential requirement for data pooling. This is a vital area which this NVED research addresses in chapter 8.

6.10 Summary

This chapter described the concept of a NVED. It examined how a NVED could be developed either through encouraging all firms to adopt a standard database structure and

set of data quality recording standards in order to permit the combination of all these systems into a NVED or through a combination of LVEDs and then RVEDs to form a national system. The chapter also discussed the aims of a NVED and the advantages to the profession of achieving these aims. Survey research examined whether respondents thought that the potential advantages and disadvantages of a NVED would materialise in practice and it was thought that the main aim of the NVED, to increase the availability of comparable evidence, would occur. Three ways of allowing access to a NVED were examined and it was recommended that the NVED should become a data-set of the NLIS with access to the data via the NLIS hub but with firms entering data onto the system via the internet. An independent data holding organisation would organise, store and maintain the central NVED database with the NLIS charging for access. The total revenue of the NVED would be split between the firms providing data with the amount depending upon the percentage of the total data that a firm contributes. The chapter went on to examine the role of the Valuation Office Agency, a minimal one until the data of the VOA are open to public access. Continuing emphasis was placed on the need for a standardised database and set of recording standards for the efficient operation of a NVED. Finally the chapter concluded by discussing the probability of NVED implementation given the evidence collected to date and compared the results of a recent survey by Adair et al to the results obtained during this research. Results were similar and providing encouraging evidence that the NVED is a feasible concept.

The development of the NVED structure and recording standards are examined in detail in chapter 8 after chapter 7 discusses the rapid expansion of on-line property data provision including initiatives such as the NLIS.

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Chapter 7 Movements towards the on-line provision of property data.

7.0 Introduction.

All types of property data are required daily by surveyors in their professional work. Without access to these data the day to day task of the surveyor becomes more complex and less efficient. Chapter 2 discussed why valuation evidence is so important and chapters 3 and 4 assessed the availability of this evidence but this chapter focuses on the growth in the on-line provision of property related data

In recent years there has been substantial improvement in the use of information technology within the surveying profession. Computer usage has expanded from perhaps one or two PC's in the larger firms dedicated to specialist analysis tasks to almost every property professional now using computers in their day to day business. Larger surveying practices, such as Jones Lang Wootton, now have networked systems providing surveyors with access to a wide range of general and specialist computer software as well as the use of intranets. The use of E-mail and the internet is expanding rapidly.

This expansion of IT literacy amongst surveyors has provided opportunities for the development of specialist computer software packages to assist in property and portfolio management, valuation and investment advice. (For an overview of such software see Wyatt 1995, Dixon 1992 and regular software reviews in the Estates Gazette.) These software packages and software systems aid the surveyor with management and analysis but still require data inputs. This property data usually stems from in-house sources, dealings with clients and the property press. Chapter 4 outlined the specific sources of valuation evidence. Property data are time consuming to collect because they are fragmented due to the nature of the real property market. Surveyors spend a great deal of their time, 30% according to Michael Nicholson of Property Intelligence Plc, collecting these data. Such opportunities have been identified to provide surveyors with easy access to a wide range of property data so exploiting the potential for data provision provided by market inefficiency. Property

Intelligence Plc with its FOCUS services was the first to exploit these opportunities in 1986. This chapter examines the subsequent rapid growth of property data providers and the data they offer on-line to surveyors. The chapter also investigates several initiatives aimed at improving the provision and efficiency of spatial data and, specifically, property data throughout the country to the public at large. Particular attention is allocated to the National Geo-spatial Database Framework (NGDF) and the National Land Information Service (NLIS), with the latter of particular importance to the NVED. Finally professional property service providers (PPSP) have jumped on the internet bandwagon with the realisation that it is another tool which they can use to sell their property services. Most large firms have World Wide Web pages advertising their services and many firms have joined forces to develop web pages which actively market commercial property.

7.1 The National Land Information Service (NLIS)

This section examines a major initiative designed to improve the availability of real property data, the NLIS. The first section describes what it is and how it will work with subsequent sections investigating the research behind the system and current pilot schemes designed to test its technology and feasibility.

7.1.1 What is it?

In the Citizens Charter first report (1992) the government identified a need for:

> *"...an initiative to explore ideas for completing the land register and establishing a National Land Information Service...to allow citizens faster and easier access to an authoritative, accurate and comprehensive public record of all land and property" (Citizens charter 1992)*

The NLIS aims to link data relating to land ownership, value and use at the level of the individual land parcel with topographical, utility, environmental and socio-economic data and to allow access to these data through a computer network, for a fee, to all interested

users. The aim is to improve the management of Britain's most important and valuable resource - land and property (NLIS 1996).

Property data are currently held by many different organisations in separate databases, many of which are inaccessible to those outside the organisation. The NLIS aims to bring together relevant data-sets relating to real property data and allow a user easy access to these data from a single access point. It would co-ordinate and distribute comprehensive, accurate, up to date and regularly maintained information on land and property ownership, use and value for every land parcel in Britain (Wyatt 1995). The NLIS, by bringing together disparate data-sets, will permit access to data relating to each individual land parcel and such data will include, not only the environmental and socio-economic data mentioned earlier, but also planning data and demographic data. With such a wide range of data available, the number and range of potential uses and users is huge.

The technology supporting the NLIS will revolve around Geographical Information Systems (GIS). Such systems are built around on a digital map base linked to textual and graphical data-sets. On a digital map each individual land parcel is represented by a polygon and linked are relevant data which are accessible by selecting, or clicking on, the appropriate polygon from the screen. Such technology also allows for textual data searches and buffer searches, searches based around ranges such as how many properties are within 100m of the bus station.

Linking disparate data-sets using textual and geographical means provides users with not only the ability to access individual data-sets for possibly the first time but also, by linking several related data-sets, the possibility of using these data for purposes other than for which they were originally collected. This adds value to data and hence users will be willing to pay for access.

The NLIS will operate by providing a mechanism through which data suppliers and data users can be brought together by allowing users access to a combination of linked property

data-sets. The data-sets are linked to individual land parcels with each land parcel identified by a Unique Property Reference Number (UPRN, which is defined in British Standard 7666). A user may access a plethora of data for a particular UPRN or perhaps search a database or number of databases for specific textual data, for example the planning policy for a particular number of streets throughout the country.

Each data provider permits access to its data-set via the central Hub of the NLIS over a local area network (LAN). This is similar to Land Information Systems in operation in other countries (Wyatt 1995) such as Australia (Hart 1991). Access points, whether at a user's home, office, or at a library or local council, would allow the user to log onto the NLIS over a wide area network (WAN) such as the internet. Once a user submits a query to the Hub, the Hub will access the appropriate data-sets and combine and relate these data back to the user's terminal. The Hub itself stores no data for reasons of security and efficiency but is powerful enough to quickly access each separate database over the LAN. The diagram shown in chapter 6 (section 6.4.2.3) illustrated the organisation of the NLIS and some of the probable data suppliers.

There is a commercial reason for data holding organisations allowing public access to their property data. As previously mentioned, combining and permitting access to such data adds value to the data. Users will therefore be willing to pay for data access. The payment scheme would probably work along the following lines. If a user requests data from a particular data provider then the Hub will directly charge the user for this access. Whether charges are per unit of data accessed, annual subscription or time spent on the system is unclear. The Hub will distribute income received from each user to the data supplier who's data was accessed.

As data suppliers continue to store and maintain their own data they are responsible for the accuracy of these data, that they are up to date and easily accessible. All data must be referenced in the same way if the NLIS is to operate efficiently with a property's address being the common spatial reference tool and the UPRN the data link. Each data-set must be

referenced to a standard and this standard is BS7666. Existing data need to be converted to the standard format to ensure they are compatible with the data of other data suppliers. Data must also be seamless even though they are held in different databases to ensure data sent to a user by the Hub from different data-sets are 100% compatible and consistent. If data are sent in different formats the user will have trouble combining the data and deriving information. It is therefore the job of the Hub to ensure data uniformity and compatibility.

There are many diverse property related tasks that a NLIS could supply with property data. Below is a list of applications which could draw data from a NLIS (Wyatt 1995).

- General property and estate management.
- Development appraisal.
- Tax assessment.
- Property valuation.
- Land use classification.
- Asset management.
- Environmental impact assessment.
- Town and country planning.
- Planning histories and applications.
- Development control.
- Land charges.
- Contaminated land identification.
- Conveyancing.
- Estate agency.
- Market and portfolio analysis.
- Investment planning.
- Land and property stock surveys.
- Emergency planning.
- Site identification.

7.1.2 NLIS research

NLIS research was stimulated by the Citizens charter white paper in 1992 advocating research into a NLIS for the UK. The Domesday 2000 research group (DRG) was set up in the same year amid national efforts to stimulate the comprehensive release of property data. The group aimed to examine how a NLIS could be implemented by the year 2000, its implications, its market potential, attitudes and awareness in relation to relevant issues, legislative hurdles, technical considerations, the adoption of standards and the implementation of strategies that precede the creation of a NLIS (DRG 1993).

The DRG consisted of a group of researchers researching topics specifically related to a NLIS under the guidance of Professor Peter Dale. Research began at Cambridge University with a survey assessing the potential market for a NLIS (Sabel 1992). 80% of respondents were in favour of the creation of a NLIS and three main strengths of the service were identified as:

- the single point of access,
- the better co-ordination of government data-sets,
- the introduction of standards.

Perceived weaknesses were:

- the unreliability of the data,
- the lack of security,
- the general level of computer literacy amongst decision makers,
- confidentiality,
- the need for government initiation of the project,
- the need for legislative changes.

Sabel (1992) also undertook four case studies within organisations that have the potential to use the NLIS for different property related applications. J. Sainsbury's plc felt a NLIS could

assist them in undertaking development appraisal for new store sites, Drivers Jonas, a PPSP, indicated the role a NLIS could play in their planning consultancy service with centralised access to government planning information and census data. They recognised a NLIS would allow a move away from data collection towards data interpretation. Bond Pearce believed a NLIS would streamline the conveyancing process and Cambridge County Council were aware of the varying opportunities a NLIS would offer their decision making and the possibilities of cost recovery through selling their data to a NLIS.

Research at the University of Brighton assessed the possibilities for property valuation using GIS technology and, specifically, the quantification of the influence of location on retail property values (Wyatt 1995). The implications a NLIS would have on the commercial property sector was researched by South Bank University with results showing 76% of respondents believed the level of data provision in the property market was poor (Wyatt, Ralphs, Fovargue et al 1992). Research at the University of East London investigated how data from disparate sources could be accessed seamlessly by NLIS users (Ralphs et al 1993) and also the legal implications of a NLIS in relation to copyright and eventually data protection (Larner 1992). The research group was sponsored by Capital and Counties plc, in collaboration with the University of East London, the RICS, the Ordnance Survey (OS) and Her Majesty's Land Registry (HMLR), to produce a NLIS demonstrator system to show how the NLIS would work and its potential benefits (DRG 1993).

The DRG successfully promoted awareness of the NLIS but management of the initiative has now passed onto the NLIS steering group (NLIS SG). The NLIS SG is chaired by the Chief Land Registrar and includes representatives from not only HMLR but also the OS, VOA, Local Government Management Board, DRG, RICS and the Department of the Environment. This ensures that all important bodies in relation to property data are involved in the decision making processes of NLIS. The NLIS SG took over in 1994 and has since instigated a major pilot project in the Bristol area.

The NLIS SG needs to promote research aimed at overcoming the main barriers currently preventing the implementation of a NLIS. These barriers include institutional and technical ones. The technical barriers are:

- The wide variety and quality of data sources all storing data in different ways to different standards.
- The differing methods by which organisations reference their property data.
- The traditional ad hoc methods of information dissemination prevalent in the property industry.
- The lack of widespread technical standards in regard to spatial data capture and storage.

Institutional issues include;

- The restriction of access to key data-sets due to confidentiality constraints and legislative restrictions, for example Valuation Office data.
- The commercial prejudice and traditional attitudes of secrecy prevalent in property data holding organisations.
- A lack of awareness of the benefits a NLIS can offer.
- Copyright and data protection issues.
- The need to introduce suitable pricing policies (Parker 1992)

The NLIS SG must overcome these problems before a NLIS can be fully implemented. Substantial progress has been made during the Bristol pilot which is the subject of the next section.

7.1.3 The Bristol pilot and British Standard 7666 (BS7666)

"This Bristol pilot is an important stepping stone towards the creation of a land and property information service as proposed in the first Citizens Charter white paper. It will prove the technical feasibility of such a service. The pilot will also provide valuable information for developing a successful implementation strategy that will deliver improvements in land and property information for the general benefit of citizens in this

country" John Manthorpe - Chief Land Registrar, Chairman NLIS SG
(NLIS Steering Group 1996a, p1)

The Bristol project began in 1994 and revolves around co-operation between Bristol City council, HMLR, VOA, OS and the LGMB. The first stage of the project investigated the feasibility of combining records held by the OS, HMLR and the VOA through their postal address (OS 1994). This led to a trial to combine sample data-sets from the three agencies for three postal sectors in Bristol and also to convert those addresses to the standards defined in BS7666.

BS7666 is an initiative that complements and is related to the NLIS project and is a standard developed by the LGMB to provide definitions for street gazetteers, land and property gazetteers and addresses. A standard address structure by which all property records are referenced provides the logical link between disparate data-sets.

BS7666 is a standard for geographic referencing and comprises three inter-linking parts published during 1992 and 1993. It is necessary in order to provide definitions for Unique Property Reference Numbers (UPRN) and a Land and Property Gazetteer (LPG) which are essential for the efficient operation of a NLIS. The three parts are

- Part 1 - Specification for a street gazetteer.
- Part 2 - Specification for a land and property gazetteer.
- Part 3 - Specification for addresses.

A street gazetteer allocates each street in the country a unique code and is also geographically located by a maximum of three spatial references as well as by reference to its locality, town and county (Cushnie 1994). This ensures each street in the country is unique avoiding problems of referencing identical street names in the same city. Part 2 specifies the requirements for indexing land and property. The LPG is a single, complete contents list, or

index, of land and property data and is particularly relevant to all NLIS applications. Each entry within the LPG will define a unique piece of land or property in terms of:

- a UPRN
- one or more textual addresses
- a position (grid reference)
- a list of data holding organisations
- metadata.

The LPG operates by assigning each Basic Land and Property Unit (BLPU) a unique code, its UPRN, a 14 digit OS grid reference and a Land and Property identifier (LPI) which is a structured, formal address linked to the UPRN and street identifier (Fisher 1994). A BLPU is the physical extent of a contiguous area of land under uniform property rights (BSI 1992). Each property under separate ownership will have a BLPU and may be defined by ownership, its physical features and/or its boundaries.

The LPG provides a method of referencing land and property data which is simple enough to be adopted by the majority of users, flexible enough to enable each application to build to its own needs, consistent enough to enable inter-application transfers to be effective and efficient enough for people to use without significant overheads (Cushnie 1994). The LPG is the key to enabling different applications, types of information and products, each having its own form of reference, to relate to each other. It provides a common link between data-sets enabling their combination.

Part 3 specifies the address structure required by the first two parts of the standard in terms of the individual address parts and their specified order.

The field trials of BS7666 by the LGMB are investigating practical issues relating to its implementation and involve local authorities. In addition, Bristol City council is assessing the business case for introducing a LPG for local authorities.

The NLIS Bristol pilot was combined with the BS7666 trial and began by building a LPG for the Bristol area. This involved matching land and property data from the OS, HMLR, Bristol City council and VOA using BS7666. A Hub was constructed at the OS to link and allow access to the various data-sets matched by address. The Hub allows access to up to date data which includes OS maps of various scales, details of land ownership, rights of way, restrictive covenants and title plans from HMLR, VOA data on both domestic and non domestic properties and land charges and planning application data from Bristol City council. The system is accessible by text, map, street or postcode search or by specific UPRNs on-line across a network which includes systems in Bristol, Plymouth, Southampton and Worthing.

The Bristol land and property gazetteer and Hub project is responsible for the construction and maintenance of the NLIS Hub which will all access to data covering the whole of the Bristol area (NLIS Gazette 1996a). The project is also further developing the Hub in terms of management and maintenance of the national LPG, the definitions of the metadata items used to describe the data-sets and the routing of data from suppliers systems to the end user of the NLIS application (NLIS Gazette 1996a).

The pilot has now developed a specific conveyancing application and a prototype system is available for promotion to display its capabilities. A panel consisting of a number of potential users of the application are testing and evaluating the pilot and two of the early comments include:

> *"...could revolutionise the way in which property transactions are carried out..." Ian Dunn, Cartwrights* (NLIS Gazette 1996b, p6)

> *"...it will enable us to provide more information, more quickly and cheaply-this must be good news for everybody involved in buying and selling land" Andrew Campbell, Alsters* (NLIS Gazette 1996b, p6)

The pilot system in Bristol has now reached a stage where internet technology is used to transmit data between data suppliers and users. The conveyancing application permits users to assemble, from the PC, all relevant data to perform a transaction instead of consulting numerous paper sources in numerous locations (Wyatt 1998). Data suppliers include Bristol City Council, Highways Agency, Land Registry, Ordnance Survey and the Valuation Office.

As part of the on-going NLIS feasibility study a management consultancy group led by KPMG were employed to report on four specific areas:

- market research to establish potential demand for NLIS services,
- the developing, financing and managing of the NLIS,
- a charging framework for customers and suppliers and,
- priorities and time-scales. (NLIS Homepage 1998)

Research consisted of interviews and workshops involving senior executives from organisations in relevant market sectors. Background investigations and inputs from the Bristol pilots further informed the consultancy project. The study also drew Information from the Swedish land information system model which markets information to over 20,000 user terminals, the majority of which are located in finance organisations, estate agencies and valuers offices (NLIS Gazette 1996b). The data will be used to support the business case of many of the potential NLIS applications in order to secure co-operation and public and private sector investment. Some of the key KPMG recommendations were:

- The NLIS concept is commercially feasible.
- It would provide a much needed and supported range of data and services.
- The critical success factor is the scope and nature of the services offered.
- There is new interest from the financial services sector.
- Two new organisations should be set up - an organisation to manage the release of data and an overseeing council to provide policy, strategic oversight and guidance.
- It is universally agreed that data must meet quality standards including such specifications as its timeliness, it is referenced correctly and facts are distinguished from interpretations and opinions.

- A popular charging system identified is an annual subscription with additional charges based on time on line and services used.
- The common belief was the "NLIS must go for quality and a narrow base initially in a way that will allow it to grow." (NLIS Homepage 1998)

The consultancy project has affirmed the initial Domesday research findings that there is a commercial demand for a NLIS. The NLIS SG continues to press forward with the pilot work and to instigate the research needed to move closer to full NLIS implementation in the foreseeable future.

7.1.4 Implications of a NLIS for the property profession.

With property data becoming publicly available other professional service providers such as solicitors or accountants may be able to access sufficient quantities of property data to offer property related services such as property management and investment advice. If the NVED were not limited in its access to data contributors then such organisations could also offer valuation services. It is therefore up to PPSP to improve the quality of their property services and the value for money offered so that clients do not switch to solicitors to provide an all encompassing property service offering property advice as well as a legal conveyancing procedure.

In terms of valuation evidence, the NLIS will prove invaluable. The NVED will provide the valuer with all the necessary comparable evidence and other data-sets accessible through the NLIS will provide supporting information on the locality, planning histories and policies, the local property market, ownership, boundaries, rights of way and the local service provision for example. The valuer will not have to leave the PC to collect the necessary data in stark contrast to the current situation where the valuer consults many incomplete sources in an attempt to piece together acceptable evidence.

There are several other reasons why a NLIS should be implemented and which make implementation possible (Dale 1991):

- There is a need to know more about land and property assets so local authorities are being urged to record their property assets more efficiently.
- The European Union is proposing a register of land holdings for each member state by the year 2000 and a LPG will provide the basis for this register.
- Better information about land and property data will encourage more effective property management, environmental protection, taxation, planning and marketing.
- Many public sector organisations involved in the collection of property data are computerising their records and with the standardisation of referencing procedures these data can be integrated so adding value and reducing data duplication.
- Current and future developments in technology provide the basis for a NLIS.
- Many countries have taken the lead in the creation of LIS and show that the cost of development can be recovered provided a critical mass of data is released

Aside from the above advantages and the improvements a NVED will make to the valuation process, the NLIS can only provide substantial benefits to the property profession allowing it to improve the services it offers, which it will have to do to fend off increasing competition from other professions.

7.2 ScotLIS

> *"The Scottish land Information Service (ScotLIS) is a project exploring the possibilities and opportunities of developing a 'one stop shop' with easy and affordable access to a wide range of computer based information about land and property from both the public and private sector. An on-line computer network system could connect professional people and the general public to a breadth of valuable information from a single point of enquiry" (RICS Scotland 1997).*

ScotLIS is the Scottish version of the NLIS (Registers of Scotland 1997). The potential applications and potential users are similar to those of the NLIS as are the list of project data-sets which include:

- Ancient sites.
- British Standard compliant gazetteers.
- Council tax information.
- Housing land supply areas.
- Listed buildings.
- OS digital map data.
- Planning applications.
- Private sector retail information.
- Public rights of way.
- Sites of special scientific interest (SSSI). (RICS Scotland 1997)

The technology employed by ScotLIS will mirror the Hub system of the NLIS with data providers paid for making their data available and users paying for access (RICS Scotland 1997). Several benefits of ScotLIS have been identified in relation to both the management of property and land. These are:

- More effective asset management..
- Economy and simplicity in conveyancing.
- Access to more information when identifying development sites.
- Improved quality and expansion of service for all aspects of property management.
- Improved monitoring of land use activities.
- Better informed environmental impact assessments.
- Greater awareness of SSSI and sensitive areas.
- Better decision making for future land management initiatives.

7.2.1 ScotLIS progress

A ScotLIS demonstrator has already been developed and, as with the NLIS, ScotLIS employed a group of consultants to investigate its market potential. The consultancy project identified a strategy for the gradual development and implementation of ScotLIS consisting of a number of phases. The first phase will concentrate on providing access to the core data-sets that those concerned with land and property data consider essential and include OS map data, Land Registers of Scotland data and local authority data (Registers of Scotland 1997). Subsequent phases aim to incorporate a wider range of public information and hopes to include private sector data. The consultancy report recommended the continued individual ownership of data but with direct access from a single access point; the provision of a 'one stop shop'. An estimate of the market value of data services equivalent to those ScotLIS hopes to supply indicated an annual market value of not less that £70m with costs for the overall conversion of data at £80-100m and the implementation costs of phase 1 being £2.3m which suggests ScotLIS will become profitable after only one and a half years. (Registers of Scotland 1997)

The first phase of ScotLIS has begun in a form that limits both the number of data providers and the geographical area it aims to serve. The City of Glasgow has been chosen for the pilot scheme with the following data providers set to contribute:

- Registers of Scotland Executive Agency.
- Glasgow City Council.
- British Geological Survey.
- Ordnance Survey
- Glasgow development agency.
- Scottish Enterprise.
- Royal Commission on the Ancient and Historical Monuments of Scotland and Historic Scotland.

Subsequent phases aim to extend ScotLIS to other areas and include other data-sets with on-line links to the NLIS. The project is being overseen by a new ScotLIS management board representing individual 'share holder' organisations to prepare cost plans for the

phased implementation of phase 1 (Registers of Scotland 1997). The timescale of the project aims for the launch of ScotLIS phase 1 in Glasgow in early 1999. The ScotLIS project is very similar in its aims, technology and data to the NLIS and indeed the two services will eventually be linked. Implementation of ScotLIS on a Scotland wide basis will have similar implications for Scottish property professionals as the NLIS will have in England and Wales.

7.3 The National Geo-spatial Database framework (NGDF)

The NGDF is an Ordnance Survey (OS) led initiative designed to link together, provide standards for, and allow access to a wide range of geo-spatial data-sets. Geo-spatial data are any data that have associated with it some geographical reference.

Geo-spatial data will include most, if not all, property related data as property data is normally referenced using its postal address, unless they are aggregated. The NGDF is an important initiative with huge implications for the future accessibility of property data and also the efficiency of property data collection. The initiative has followed a growing appreciation of the importance of bringing together many existing geo-spatial databases. (Nanson et al 1996)

The main advantage of bringing together geo-spatial databases is the increased quality of the data achieved by the identification of data inconsistencies which would become apparent during and after the linking of geo-spatial data. Also there is the generation of added value through such data linkages and a consequent improvement in the availability of data and the efficiency of its collection. Initiatives aimed at bringing together geo-spatial data have occurred in other countries with the most obvious example being the Clinton Executive Order mobilising the National Spatial Data Infrastructure in the USA which was initially designed to improve co-ordination of disaster relief efforts.

There is a wide range of geo-spatial data in this country with 60-80% of all data held by Government classified as geo-spatial (Nanson et al 1996). Such data are usually held in separate files, collected to different definitions, stored in different locations and on different systems. Bringing together these data under one umbrella framework not only increases data availability but, by linking data-sets, makes access to specific and related data-sets cheaper and more efficient.

Different data-sets obtain added value when they can be used together to provide relevant information coupled with a simple data access and retrieval process. It is currently the case that potential geo-spatial data users are unaware of the vast holdings of data-sets that are, perhaps, relevant and for which such users would pay to access. One initiative aimed at informing data users of available data-sets is the SINES meta-database. SINES aims to provide the fundamental requirement for knowledge of what data-sets exist, who they are held by and whether or how they are available (Nanson et al 1996). A service such as SINES is vital in a vast web of geo-spatial data to identify where to look and what to expect. The current SINES system is run on behalf of the Inter Departmental Group for Geographic Information (IGGI) by the OS and describes some 500 Government held geo-spatial data-sets and allows the selection of a data-set on the basis of a keyword search, by location or by organisation. The results of a search is information which provides an overview of any relevant data-sets with a contact addresses for further information. SINES was until recently (Early 1998) available as a service on the World Wide Web allowing on-line searches but was not a 'one stop shop' that allows data-set selection and a link to these data-sets.

The NGDF will be the high level framework to facilitate the linking, combining and widespread use of many geo-spatial data-sets collected, maintained and held by different organisations largely in the public sector. (Nanson et al 1996)

The framework is designed to provide the data environment in terms of processes and procedures, standards and best practice to enable and encourage growth of applications and services based on geo-spatial data (Hoberman 1997). It could work rather like a NLIS on a very large scale by providing a 'one stop shop' facility based on distributed but inter-linked databases. The distributed data-sets in a NLIS are relevant to conveyancing and estate management tasks whereas the data-sets of a NGDF are more varied and would cater for a wide variety of users. The NGDF would not be a single database storing all the data but a 'virtual database' providing links between, and access to, individual data-sets (OS 1994).

Widely inaccessible data-sets have no value to potential users but providing a framework which will allow access to these data adds value to the data-set. One accessible data-set will have value in itself to potential users but combining many databases, all of which have value to users, and allowing access from one point clearly makes each individual data-sets more valuable. Linking data through its geo-spatial identifier may improve data quality and consistency. These are the commercial and quality issues that provide the justification for a NGDF however unless such data linkage is seamless such an umbrella framework is limiting. By placing all data within such a framework access to such data-sets, specifically specialist data-sets may become difficult with many smaller data-sets swallowed up in the vast array of available data. Care must be taken to ensure that users are aware of the nature of the data-set and its source.

The NGDF will support initiatives already in place which, like the NLIS and ScotLIS, link disparate data-sets. The NLIS is complementary to the NGDF (OS 1996) and the NVED, as a data-set of a NLIS, is entirely consistent with the aims of the NGDF. A NVED aims to bring together private sector comparable databases which collect similar data but record and store data in dissimilar ways, a smaller version of the NGDF.

There is little doubt that the future of geo-spatial databases will revolve around the NGDF standards and best practice. This will improve the efficiency of geo-spatial data provision

and, with virtually all property data being geo-spatial in nature, this may improve the availability of property data and the ease by which surveyors can collect these data.

7.4 Property Intelligence Plc's FOCUS

Property Intelligence Plc was established in response to the lack of property data available in the property profession. It launched its range of FOCUS services in 1986 to "address the information needs of commercial property professionals and help make them more successful." (FOCUS brochure) It was originally a text based subscription service providing information relating to commercial property extracted from the property and national press and any other published sources. The data were of the type easily collectable by any property institution but because Property Intelligence Plc collected and assimilated that data at the individual property level they added value to those data therefore clients were willing to pay for the service. FOCUS was criticised for providing data that were from secondary sources which are, by their very nature, prone to error and very difficult to check for accuracy.

FOCUS expanded rapidly and now offers a new FOCUS service, known as New FOCUS, which delivers, over a reserved network to ensures speed and security, its full range of data services. Using a reserved network alleviates the problem of other users cluttering up the data lines so slowing data transfer or illegally accessing the data. New FOCUS has moved from a purely text based service to a service that utilises a Windows platform which provides a familiar and easy to use procedure. The service is a vast improvement on the original text service but the data it contains remain the same, from secondary sources updated by field research, telephone research, buying in data or monitoring published and private sector data sources.

FOCUS contains a wide variety of data, some very specific and only relevant to the property professional and other, more general data relating to companies as a whole.

7.4.1 FOCUS, NLIS and a NVED.

It may, at first, appear that there will be little difference between the services offered by FOCUS and those by the NLIS when fully implemented. Both attempt to provide on-line access to a wide variety of property data-sets increasing the availability of property data. The differences lie in the data actually available and the way these data are accessible. All data in the NLIS are linked using the common address structure from BS7666 and, more specifically, a UPRN. With all data linked via this UPRN, if a user wished to access all data relating to a particular property they could send one request and the Hub would retrieve all relevant data from all data-sets. With FOCUS the task is more complex. Properties are referenced by address but the address may differ depending upon the original source of the data.

Data duplication between FOCUS and the NLIS is not as great as may be expected. NLIS is purely property specific and only contain data relating to the individual property and wider data-sets of direct relevance to that property, for example planning data. The FOCUS data are more general and include data relating to occupiers and companies and other users of property rather than the individual property itself.

> *"The ability to link disparate information sources is vital if databases are not to become redundant and the time an money creating them wasted." (FOCUSNET web page)*

There is no reason why FOCUS could not provide the on-line access to a NVED. It does offer a comparable service in its property bank service but this only provides rare published deals which contain few actual transaction details. The NVED would lose the advantages it gains from access via a NLIS, those of the valuer being able to access other data directly relevant to the subject property and identify and retrieve details of possible comparables from the map base, but FOCUS allows tried and tested on-line access to PPSP. The NVED could become a data-set of FOCUS with Property Intelligence Plc providing the data maintenance and administration were private sector agreements to be set in place before the

NLIS becomes on-line. Most, if not all, leading PPSP have access to FOCUS so providing access to a NVED via FOCUS would incur no costs in terms of system resources. After NLIS implementation, FOCUS and the NVED could split and both become data-sets of the NLIS although this would require a huge overhaul of the data contained in FOCUS in terms of referencing them to BS7666 allowing the data link with other data via UPRNs. Whether Property Intelligence Plc believe this worthwhile or would be content to offer FOCUS as a separate service will only be known nearer NLIS implementation.

7.5 Property data provision via the internet

The internet has expanded incredibly quickly, especially in the last two years, and has become an extensively used tool in the business community for advertising, data collection and service provision. The property profession has begun to realise the potential of the internet and internet observation indicates that almost all of the larger firms are connected to the global network. Desk top access to the internet is growing with the realisation by property firms that it can be utilised an effective business facility. Communication by E-mail, particularly inter-firm communication, is also growing. As the internet is continuously growing and changing so are the users and web sites but the following sections provide an accurate account at the time of writing, December 1997.

7.5.1 The property press.

The UK daily press has been electronically available for over 2 years and property professionals can gain easy access to any property related articles. The Times and Daily Telegraph, in particular, have specific property sections which are of considerable interest and archives of information are available which are searchable via keywords. This is particularly useful if the user knows which article he/she is searching for if he/she wishes to locate any reports on specific topics, for example the London office market.

The property press has lagged behind the national press in allowing on-line access but three organisations now provide useful services on the internet. MCB University press has a very comprehensive web site containing publications such as the Journal of Property Finance, the Journal of Property Valuation and Investment and Rent Review and Lease Renewal. Once accessed the user can browse the contents lists of current and back copies of the journals and, for the Journal of Property Valuation and Investment all articles from 1996 are available on-line in full. MCB also have an archive of journals available on CD-ROM and have begun internet conferencing where users can 'enter' a conference hosted at a particular site and submit or read papers and comment on what they have read to stimulate on-line debate.

The Chartered Surveyor Monthly (CSM) is now available on-line from the home page of the RICS. It provides the same service as the paper copy specialising in up to date news of relevance to the property industry. The CSM archives are searchable by keyword, a service useful to any user wishing to find a specific article or item of news.

Another useful innovation for the property professional is the Estates Gazette Interactive (EGI). The paper copy of the Estates Gazette has been required reading for many years and now the EGi allows on-line access to its contents through the internet and, in addition, several other useful services.

The most interesting, and potentially the most useful service in terms of valuation data collection, is the EGi's deals service. This is a database of completed transactions the details of which clients have allowed published, otherwise there would be problems of confidentiality. The archive goes back to June 1995 covering details of over 11,000 deals increasing by about 300 records a week. The archive is searchable using a number of search criteria chosen from the screen. The details provided are more comprehensive than those that usually appear in the property press and are useful for identifying general rental and capital levels for particular property types in particular locations. However the records are insufficiently detailed to allow the use of the record as a specific item of comparable

evidence. The is no way of identifying, without contacting one of the surveyors involved in the deal, if a capital price reflects the market price or if the rental value reflects the full open market rental value. The specifics of the deal such as the quality and condition of the property, the accommodation, the services available, its marketing history, any incentives for example are not available on-line to determine whether the deal was an arms length one or there were any other anomalies which influenced the price. For rental transactions the lease terms are not presented in detail, there are no details of any lease incentives or the property's condition or accommodation so the valuer cannot identify why the rent is at the prevailing level and if that level reflects the full open market rental value. Relying on the sales price or rental figure for comparable purposes is therefore riddled with dangers. However it is a useful service and is the most comprehensive archive of property deals on the internet.

7.5.2 Other WWW sites

Several property marketing services exist on the internet which provide basically the same service, that of a database of commercial property for sale or to let and which may be searched using search criteria which vary little between each site, for example Estates Today. Search results simply provide basic property details and the agents contact name. These virtually identical services provide for a substantial duplication of resources. Any client wishing to identify a suitable property using these internet services would need to access each individual site and undertake four or five identical searches to identify a suitable property, if it exists, many of which appear on more than one site. It does indicate, however, that co-operation can occur between large surveying practices who have joined in producing these sites and market their properties together. It is desirable to combine all these separate services onto one database or link them together using the address of the property and a common search mechanism to allow single access and a single search of all sites at a single access point.

This marketing tool, if combined, would provide a very useful service when combined with the NLIS. Suitable properties could be identified and the user could locate the property on

the NLIS map base in order to retrieve information on the surrounding area to determine the suitability of the property. Until combination of these sites occurs the separate sites provide a frustratingly fragmented and slow service, slow even at quiet times especially when there are photographs attached to property details. It is tedious and repetitious and only provides basic property details so the acting agents must be contacted in any case for further property particulars. As technology improves so will these sites providing more detailed property information possibly including video footage and audio descriptions. This is certainly a service with growth potential with the capability of being significantly improved and, judging by the speed with which so many sites have appeared on the internet, growth should prove extremely rapid.

7.6 The future of property data collection.

The NLIS, NVED and the internet will become the three main sources of property data in the near future if the first two are implemented successfully and utilised to their full potential. The internet is already becoming an important data communication tool and source. The World Wide Web sites of many surveying practices contain property market reports and the property press, including the Estates Gazette and Chartered Surveyor Monthly, are available over the internet. Property marketing pages have been developed in the last 18 months and many other specialist property sites exist to aid the search for property data, for example the PRO-NET property highway. Property Intelligence Plc's FOCUS service is now fully available on-line in an new, easy to use Windows format and the FOCUSnet web page also provides a wealth of information. There are already a myriad of on-line property data sources available, not only to property professionals but to other property data users as well.

On-line data provision is efficient and convenient and will continue to grow rapidly. If a NLIS and NVED are implemented effectively the current situation of consulting a wide range of sources to gather sufficient information will change. For example a property valuation will no longer necessitate searching paper files for evidence, phoning colleagues in

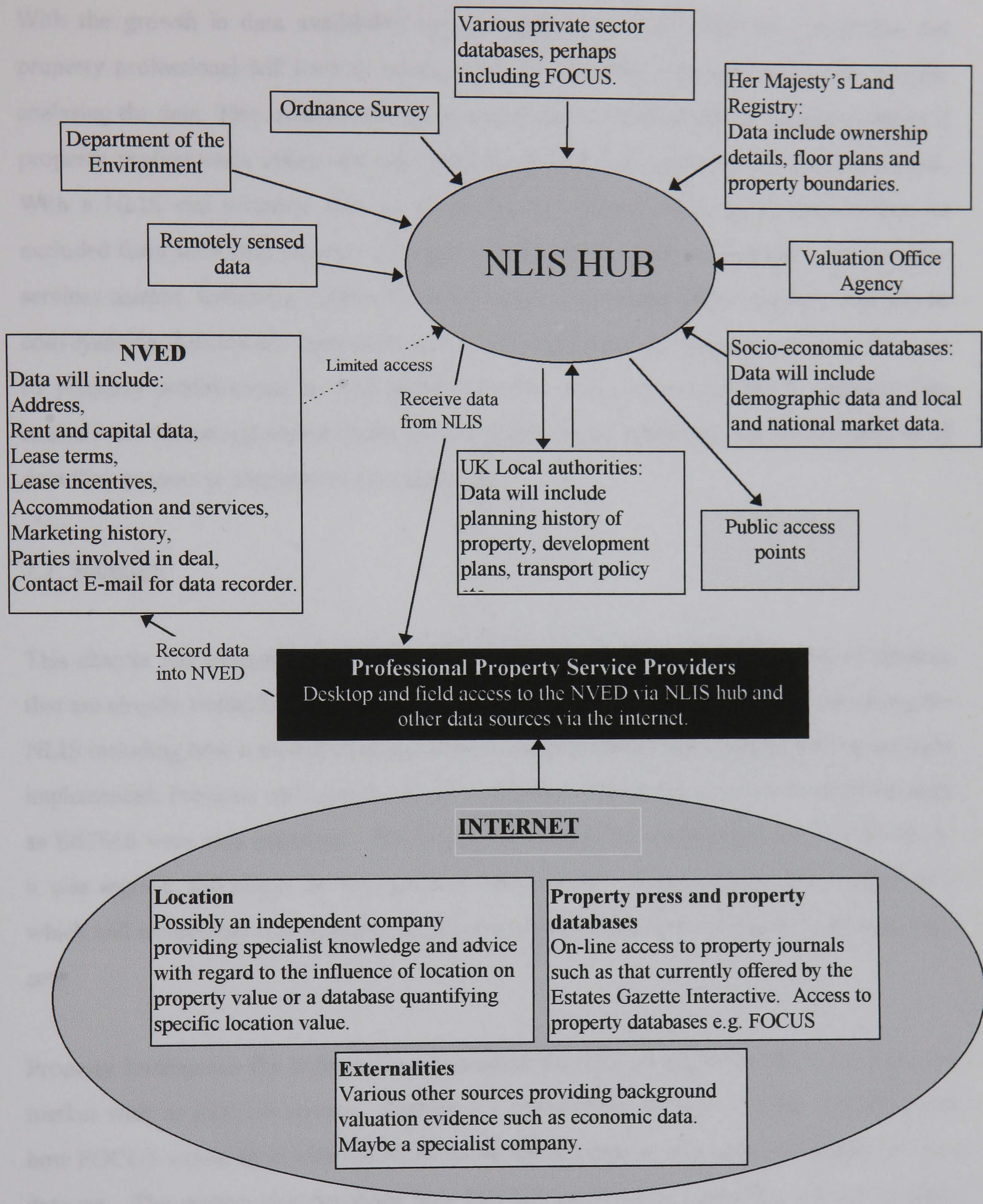
local firms for details of further deals and searching secondary sources for further evidence. The NVED will allow access to a huge source of detailed comparable evidence. Searches will retrieve any comparables in the locality and, if they do not exist, from further afield. This will allow more objective quantification of value factors and the database itself will permit research into the production of statistical valuation techniques. The map base of the NLIS will allow the affect of location on value to be analysed more precisely. Following the collection of comparable evidence the NLIS will provide other property data relevant to the valuer such as the planning policy of the locality, the transport links, local services and possible demand and supply changes in the market. Also more general data such a local market commentary and socio-economic data would also be available.

Figure 7.1 illustrates the type of data that a NLIS would provide and also displays the relationship between a NVED and NLIS and the overall future of data collection. Data are required for all property related tasks be it a valuation in whatever form, property management, planning advice, investment advice for example. The property professional would begin the search for appropriate data by logging onto the NLIS from his/her PC. The user could query any or all of the linked data-sets by sending a simple query to the NLIS Hub which would access the relevant data from each data-set, assemble them and relay them back to the users terminal. It will be possible to collect data for individual properties, a number of properties, a street, locality, town etc. so the amount of property data collectable is unlimited. After retrieving all relevant data from the NLIS the user may then wish to consult other sources available through the internet. The property press is one such source which provides useful data such as market commentary, auctions, company information and relevant articles.

The increased access to data and the ability to provide on-line data opens up opportunities for the development of specialist property data providers offering services to, not only the property profession, but other professions and organisations as well. Examples of possible services are the quantification of the affect of location on value using the technology offered by a NLIS (See Wyatt 1996, Gallimore et al 1996). A specialist firm may, perhaps, be able

to offer a service which attempts to measure the influence of location on property value after analysing NVED data and accessibility measures. A valuer could then consult perhaps a database containing value maps or specific measures per street. Another example of a specialist data service are firms providing property value forecasts for national and local markets which will prove useful for Estimated Realisation Price valuations.

Figure 7. 1 The future of property data collection.



With the growth in data availability and the ease with which they are collectable, the property professional will have to spend less time collecting data and more time actually analysing the data. This should result in an improvement in the quality of advice to clients if property professionals utilise the new technology and innovations to their full potential. With a NLIS and property data provision via the internet, other professions cannot be excluded form collecting property data and so will easily be able to compete in the property services market. Solicitors could offer a full range of property related tasks in addition to conveyancing thus transforming them into a 'one stop shop' for property services. It is up to property professionals to stay ahead of other professions by offering superior data analysis and advice and secure clients on the quality of this advice and not on the quantity of data they possess in comparison to competitors.

7.7 Summary

This chapter has examined the growth in on-line data provision, both in terms of services that are already available and initiatives in the development stage. It began by describing the NLIS including how it would work and how it would influence the property profession once implemented. Previous and current research relevant to the NLIS and related initiatives such as BS7666 were also examined. The chapter proceeded by investigating the NGDF which, it was argued, will shape the organisation and provision of geo-spatial data in the future which will include the way property professionals record their data and access relevant data-sets.

Property Intelligence Plc is the main independent provider of property data in the property market with its FOCUS service. Section 7.3 outlined the services it offers and discussed how FOCUS would fit in with the NLIS in the future whether as a direct competitor or as a data-set. The section also described how FOCUS could easily administer a NVED system via its intranet and that this organisation is possible prior to NLIS implementation. The internet has expanded rapidly in the last 18 months and section 7.4 investigated its use by the

property profession including a description of the service offered by the property press and the web pages of surveying firms. Property marketing services offered on the internet are common and it was argued that to be effective these services should be combined or at least linked to provide a more efficient service. The chapter concluded by describing the future of property data collection with the NLIS, NVED and internet all playing an important role in the data collection process of the professional property service provider. The chapter demonstrates that there is a great deal of activity in the area of general property data provision, if not specifically valuation evidence provision, therefore progress in this area should be swift as the will exists to make it happen.

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Chapter 8. The development and evaluation of the National Valuation Evidence Database structure and valuation data recording standards.

8.0 Introduction.

Chapter 6 discussed the concept of a NVED and continually emphasised the need for the adoption of a uniform database structure and set of valuation data recording standards. This chapter describes the development of the database structure and recording standards which form the technological basis for the NVED. This research has produced a workable database known as the Office Comparable Database System (OCDS) which will provide this uniform structure. The chapter firstly examines existing comparable databases and explains why none is suitable for a national on-line database system. The comparable database at Sanderson Townend and Gilbert (STG), a professional property service provider based in the north-east, is used as a case study to highlight common problems and shortcomings. The main survey questionnaire identified the requirements of a national database in terms of the data it should contain, the fields required for query searches and the priority of recording standards. The findings are discussed in section 8.4.

The chapter continues by outlining the development of the database and standards and then examines the details of the database forms, the use of queries and reports, the creation and attachment of the standards and the overall advantages of the OCDS in comparison to other databases. The chapter concludes with the critical evaluation of the database structure and standards. This was is achieved through the use of two case studies, one STG and one at the head office of Jones Lang Wootton (JLW) in London. Both firms tested and evaluated the performance of the database and standards and commented on how it would or would not benefit their firm.

8.1 Database basics

Before beginning a chapter which focuses on database technology it is prudent to establish a working definition of a database and some basics of database terminology. A commonly used definition of a database is "a collection of data related to a particular topic or purpose" (Simpson 1994). Extracting, analysing, combining or presenting these data in a meaningful format produces information. The database breaks down information into its constituent parts which are then stored under common headings or 'fields' in the database as data (Stamper and Price 1992). For example, a postal address provides information but this address would be stored in a database under its constituent parts such as the property name, property number, street name, town or city, county and postcode. Each individual entry is data and by combining all these data items or a particular selection produces information.

A database does not just store data, as is the case with paper files, it also contains objects or tools that manage these data, permit and control access to the data and allow data analysis. These objects provide the database with its flexibility. For example, the database could retrieve all properties in the city of Newcastle upon Tyne. With information stored on paper media the user would have to look through every record and retrieve the matching items whereas the computerised database 'filters' records which match the selection criteria minimising the effort required from the user. The database can also help the user by sorting records alphabetically, numerically or chronologically.

Most databases store data in tables. Tables are made up of columns and rows, identical in nature to a typical spreadsheet with each column containing specific data, for example a street name. Each row contains a separate record which is the set of all data fields in one row of the table. A database may contain any number of tables which may be linked or related to each other through the use of common fields. For example, one table may contain a unique property identification (id) field and all the data items that constitute the address of a property. Another table may contain the details of the owner of that property with his/her name and address and the property id field. The two tables have in common the property id

field and this permits the tables to relate to each other instead of storing all these data in a single table which makes data difficult to manage. Each table should contain data relating to a separate subject to promote data storage efficiency. Too much data within a single table will not only give the table a cluttered appearance but makes data presentation and data analysis more difficult and query searches slower.

Apart from tables which store all data, a database contains several other objects that aid data management and analysis. These tools include forms, reports, macros and queries. Forms are used to present and enter data. They allow the presentation of the data in a user friendly manner and enable the attachment of data entry tools such as drop down menus which ease data entry. A query is a tool for asking questions relating to the data in the tables. They permit data searches through the specification and selection of criteria, for example a user may run a query which requires the database to retrieve all properties contained in a table with London in the city field. Queries may also be used to join and combine data from related tables. Reports allow the printing of data in pre-specified formats such as mailing labels or summary reports. A macro is a set of instructions that automate a task that a user often needs to perform such as opening a particular form. Attaching macros to forms enhances the efficient management of data. Utilising these tools and creating data relationships between tables makes a database a powerful tool for storing, manipulating, analysing and presenting data as information.

8.2 The need for a uniform database structure and set of recording standards.

Any database system must have an efficient, easy to use and effective structure, preferably with a set of recording standards meeting similar requirements. The centre-piece of any national system would be a single software system utilised by all users. Existing systems are based around different software, different database structures, differing data definitions and different data standards, if any. The combination of these systems to produce a NVED is simply not possible. If there were a national agreement to release and pool data then firms could adopt the uniform database structure prior to the release date (see section 6.3).

Similarly with LVED and RVED systems, if there are agreements throughout the country to form these comparable systems, in order to facilitate the creation of a national system all systems should adopt this uniform database structure and set of standards. Developing the OCDS structure a considerable period of time before the creation of any NVED, LVED or RVED system is vital. This is the purpose of this section of the research.

8.2.1 Data definitions and standards for the profession.

Before describing the development of the database and its workings it is important to emphasise the necessity for data definitions and data standards within the database. Section 2.4.1 described how there is a lack of standards within the property profession which explicitly define the data items and factors which must be taken into account by the valuer when producing a valuation. It was argued that there is a need for detailed standards and definitions, along the lines of the RICS Red Book(RICS 1996) and Code of Measurement Practice (RICS/ISVA 1993), which clearly lay out and define all those data items that should be taken into account by the valuer. This database goes some way towards achieving this aim. During the chapter a profile is built of the database, how it works and how data standards are tied in to the database. It continually emphasised the need for data standards and describes the development of the standards used with this database.

The database itself contains all the data items which influence the value of a property. This is a gap that appears in current literature as there has been no published information which attempts to define all value influencing factors for office property. The database alone would provide valuers with an explicit account of the data items they should be considering when analysing comparable property and applying these analyses to the subject property. This satisfies half the criteria discussed in section 2.4.1, that is identifying the data items relevant to the valuer. Section 8.4 describes how these data items were identified. The other half of the requirement, defining all these items, is satisfied by the data standards which are attached to the data fields. Every value influencing factor which appears in the database has an

accompanying definition which describes what is meant by the named description and examples where appropriate. The development of these data standards, which are actually recording standards designed to promote uniform recording but work equally well as data definitions, is described in section 8.7.

8.2.2 The office comparable database system (OCDS)

This research has produced a working office comparable database and set of valuation data recording standards to be used as the basis for a NVED. A NVED will be a database that includes comparable systems for office, retail, industrial, mixed use and specialist property types. This research aims to prove that it is possible to produce a stand alone, comprehensive, efficient and workable database that provides the user with all the necessary information from a comparable property. The OCDS also sets in place the framework for the later addition of the other property sector systems. The research chose to develop the office database as opposed to other sectors for several reasons. Firstly, the majority of the comparable data relevant to an office property sectors are also relevant to other property such as address, lease terms, services, incentives and marketing history. Secondly, the majority of PPSP deal with office property on a day to day basis, this made it easier to collect survey data. Finally, office property provided the challenge of developing a system to cope with a variety of property sizes and descriptions from converted town houses to city centre office blocks. If it were possible and feasible to produce a database that covered the wide variety in office properties then it would be possible to produce a similar system for alternative property types. Each property type will have a separate database but each will be accessible from the same point through a single menu screen shown, in figure 8.2, but it is only the office database that is currently operational. The development of the additional systems is a subject for future research.

Survey research identified that 48% of firms possess a computerised database system, the majority of which combine the recording of all property comparable evidence in a single flat database table. The database typically presents the property's address then signifies what

type of property it is with the remainder of the database entry recording transaction details such as lease terms and capital. This is simply not efficient. The range of data provided by a single comparable is extremely wide. For example, to be comprehensive the ODCS database has to cater for over 100 fields. Different property types provide different comparable data items. For example a retail comparable property will provide relevant data on frontage depths, zone A rental levels, distance from public car parks, storage space and so on and industrial properties provide data on eaves heights and load capacities for example, few of which are relevant for office properties. Developing a comparable database that is comprehensive in its data coverage for all property sectors would require hundreds of data fields with many of those fields relevant to all property types requiring different definitions for each type, for example different size definitions for industrial and retail properties. With so many fields it is impossible to contain the database form on a single screen which is a necessity for ease of use. A practical alternative is to split the database, or more correctly the tables, into different sectors with each sector containing its own data storage table, data entry and data presentation form. Splitting the database in this manner reduces the quantity of records manageable by a single table so improving data storage efficiency and increasing the speed of query searches.

This research sets in place the overall database structure, query and report mechanisms and presentation procedures.

8.3 Problems of existing comparable database systems.

Over two-thirds of the 48% of firms possessing the computerised database were the larger, national firms and all of these firms relied on other data storage media such as paper records. The usual procedure is the storage of the basic comparable details such as address, size, rent and price on the database with a file reference number linking the record to a paper file containing the additional comparable details. The user searches the database to identify suitable comparables, if they exist, and the location of the paper files that contain the additional comparable details. This procedure has several major problems. It is inefficient

because the user must consult two sources to retrieve a single comparable record. If a surveyor has forgotten to record a transaction then the user will have great difficulty in locating the paper record. If the property file system used to link the computer record and the paper record is sequential rather than sorted in any alphabetical or numerical procedure then the system relies completely on the computer database identifying the paper file location. This combination only works if the surveyor correctly records the computer record or the paper files are organised in a arrangement that allows a manual search. There is also the danger of the surveyor not consulting the paper record for additional details and only relying on the information contained within the computerised record. It is essential that a valuer has access to the full transaction details to allow the identification of the value characteristics of a property in order to apply these characteristics to the subject property to produce an objective valuation.

An effective comparable database system must contain comprehensive comparable records. It should be the only in-house source of comparable evidence in need of consultation with paper records only necessary as an emergency backup. The ideal system is comprehensive, easy to use and is complemented by a set of data recording standards. Such a system would improve the efficiency of comparable evidence collection and also the quality of comparable evidence by providing data definitions and ensuring the consistent and uniform recording of data. Current systems have limited, if any, recording standards and data quality assurance is confined to spot checks by a senior partner, head of department or IT administrator. The pilot database system survey identified that where recording standards do exist they are usually only brief guidelines directing the user in the recording of certain data items. The systems examined during this research had no comprehensive standards and standards that did exist were usually codes of practice drawn up through experiences gained when using the system. Standards are essential to ensure that the surveyor records the correct data accurately because without them two users may record the same comparable in two different ways. For example the recording of an alienation covenant may differ in such a manner to render two entries, that are supposed to be identical, open to different interpretations. Standards must ensure the uniform recording of data so users are aware of exactly what

information a combination of fields is trying to convey. No system examined achieved this. The only method of securing uniformity is to provide users with a list of possible data options to choose from on screen and provide definitions for each choice. This is what the OCDS aims to achieve.

Another major problem of current databases is that they are generally complicated to use. It is difficult enough to persuade surveyors to record comparable evidence in any form and they certainly will not spend time using a computer programme that is itself time consuming to operate. To encourage system use, the database must be as user friendly as possible with an interface that is familiar and acceptable to potential users. Many of the current systems were developed prior to the implementation of Microsoft Windows. Consequently many databases are DOS based so rely purely on numerous keyboard commands to allow the user to navigate the database and select appropriate options. It is therefore often left to a specialist clerk or secretary to deal with the database administration. Surveyors enter the comparable details onto a set form and the secretary or clerk will enter the details onto the computer. Any database queries or record retrievals have to go via the secretary or clerk. This is problematic and was dealt with in chapter 6. A windows based system familiar to software used during the surveyor's daily work will overcome the problem of the surveyor being unable to use the system. Using a mouse and standardised menus the user can become quickly familiar with the system and record the comparable details directly onto the database so alleviating many worries of data inaccuracies.

The final problem of current databases was mentioned in the previous section, that of recording the transaction details of all property sectors into a single database format. This prevents the comprehensive recording of records, inhibits effective data management and slows comparable queries.

The OCDS structure and standards must overcome the problems of existing systems described above. It should provide comprehensive and accurate records, record data in an uniform manner, be easy to use but at the same time powerful enough to allow complex data

operations. The next section outlines, through a case study, the typical problems of existing systems and the solutions proposed in the database and standards developed during this research.

8.3.1 A case study

Sanderson Townend and Gilbert (STG) are a regionally based firm in the north-east with its head office located Newcastle with several smaller branches throughout the region. For a regional firm their IT services are considerably more advanced than firms of a similar size and, indeed, many firms larger in size. They have a home page on the world wide web detailing their services, a GIS system and access to specialist property software. STG introduced their "Shannon" database system in 1989 after it began as a card index system in 1978. The database is stored on a computer with a 286 processor and is a DOS based programme containing the last 5-6 years of comparable evidence. With the database run on a particularly old machine it is consequently very slow and its DOS based programme makes it difficult to use. This necessitates the use of a database administrator (clerk) who inputs the data and generally maintains the system. Valuers may use the database themselves to undertake searches but normally require the clerk to do it for them.

When a transaction is complete, valuers fill in a form contained on a single sheet of A4 paper using the guidance notes provided. The guidance notes relate to each item on the form and provide the valuer with basic instructions as to the data required. The completed form is then passed onto the database clerk who enters the data onto the system. Each database record is linked to its paper file which contains the full comparable details and, once accessed, the computer record informs the user of the paper file reference number. The database consists of 51 fields any three of which may be used for a query search.

The main problem STG have with the system is trying to persuade valuers to fill in the data form and send the form to the database administrator. The only partial solution developed is spot checking by the head of the valuation department. There is also the problem of the

correct recording the property's address. There are 9 fields which record individual address items but the standards associated with each field are very limited. Consequently valuers will record the address of the property they are familiar with which may or may not be the common postal address. For example a property may be known by one valuer by a particular name but to another as a number so when it comes to retrieving the property by address this is not possible as the two addresses differ. A solution is either the adoption of strict standards or the use of BS7666 with its specific definitions and complex identifiers. BS7666 is still in its trial stage and it will be some time before it is in general use.

Users of the system identified that a major failing of the database is that the records it contains are not comprehensive. The 51 fields are split between each property sector and most of the fields are simply tick boxes which relate to a specific scenario, for example tick the box if the lease was sold. This is an attempt to standardise record entries and promote consistency but prevents the recording of the records in sufficient detail. In comparison with other databases examined the records are, in fact, quite complex providing more than the basic property details but valuers must still consult paper records. Searches use a maximum of three fields, the first of which is normally the property type, and the use of so few variables narrows search possibilities which does not prove too problematic with a small database but certainly would do in a NVED system. The previously used card index system was preferred by some valuers who commented that the most useful section of the card was the open remarks section where valuers explained any peculiarities of the sale or letting. STG are looking to update their system and employ a more efficient and user friendly database system.

The OCDS structure and standards will solve many of the major problems identified from the STG system. Firstly it is a windows based system with a user friendly interface requiring simply the use of a mouse so all valuers would be able to use the system after a short tuition session. The standards associated with the database are accessible from the database screen at any time during a session which has the affect of promoting their use. If a user is unsure of a particular data definition he/she may consult the standards which provide the definition

and then record the correct data. To ensure data uniformity, most of the fields are served by drop down menus. These menus provide a list of the majority of possible data entries from which the user may select the appropriate one. Again the standards provide a definition of each possible data entry to ensure the user selects the correct one. The promotes uniformity and consistency of data recording.

As the database form is restricted to only office comparables this enables the database to comprehensively record all the transaction data. The valuer then needs only to consult the database record and not a separate paper file. Searches are possible by any number of fields and by any number of criteria within a field permitting easy to use, yet powerful searches. Of course there still remains the problem of persuading valuers to spend the time recording the data but this is an educational problem and valuers must learn the advantages of recording data for future use. This is particularly apparent in an NVED system. If all valuers consistently record data, the availability and quality of comparables increases and so does the objectivity of valuations. If valuers fail to record data then the efficiency of the system will suffer.

8.4 The identification of valuer requirements from a NVED.

Following the examination of existing computerised database systems in many of the major surveying firms, research progressed to identify the requirements of valuers for a NVED system in terms of the database structure and data requirements. The pilot survey of existing systems (see chapter 3) identified which data the systems recorded and the standards they used. In the main questionnaire survey respondents were provided with a list of value data items and were asked to select which data items were essential from a comparable. Respondents were also required to select from another list which fields they would like to be able to search to retrieve comparable evidence. The same section also identified the priority of recording standards.

8.4.1 Survey results

Within the questionnaire, respondents were given lists of property information factors such as lease incentives, lease terms and marketing history and a list of data items that made up these information factors such as the rent review pattern, user clause and length of lease for lease terms. Firstly respondents were asked whether information factors were vital and then whether data items within these factors were vital. Results for each section are displayed below in a tabular format with the first column displaying the information factor or data item and the second column the percentage of respondents who indicated it was essential that a comparable record provided some sort of commentary on the factor/data item. Any factor or data item felt by over 50% of respondents to be an essential component of a comparable was immediately noted for inclusion as a data group or data field in the database. If under 50% of respondents regarded the factor/data item as essential then it was either not included in the database or included in a modified form. The first table (8.1) lists the information factors within a property transaction.

Table 8.1 Essential information factors

Information factor	**Percentage regarding factor as essential**
Lease incentives	93
Lease terms	96
Marketing history	40
Planning information	50
Quality of accommodation	86
Rent agreed/capital price	100
Services	73
Size	95
Strength of tenant covenant	67
Yield information	71

All information factors achieved over the 50% mark for immediate inclusion except for planning information and marketing history. Planning information will be a major data-set of the NLIS in the future. This information tends to be on a local basis rather than for each specific individual property so it was decided to leave planning information out of the database and rely on other data sources to supply the relevant information. Many local authority planning departments now publish information on the internet and ComPro and FOCUS provide on-line planning details so a range of data fields in the NVED database was considered unnecessary.

Only 40% of respondents regarded marketing history as an essential information factor. However on further investigation this initial figure is open to question. Respondents were given a list of six data items that constitute the marketing history of the property and selected those they regarded as essential data from a comparable. The results are shown below.

Table 8.2 Essential data items of a property's marketing history.

Data item	**Percentage regarding data as essential**
Arms length deal?	80
Degree of active marketing	57
Has the property been marketed?	58
How long on the market	80
Marketed by how many agents	32
Marketing process	36

Of the six items all but two were now regarded as essential comparable data by over 50% of respondents. The only two not considered crucial were how many agents marketed the property and data on the marketing process. These items were therefore not included as data fields in the database but the remaining items were.

Lease terms are made up of many data items so respondents were provided with a list of eight items and selected the essential data and even though this was not a comprehensive list it provided an good idea of the type of data required.

Table 8.3 Essential data items from lease terms.

Data item	**Percentage regarding data as essential**
Alienation clauses	73
Break clauses	99
Lease commencement date	68
Length of lease	96
Rent agreed	97
Rent review pattern	87
Repairing covenants	83
User clauses	84

All data items were regarded as essential so each was allocated a data field in the database.

Table 8.4 Essential data items of lease incentive information

Data item	**Percentage regarding data as essential**
Fitting out costs	71
Premiums	93
Reduced rents	90
Rent free periods	97
Reverse premiums	96

It is vital that details of lease incentives are available for scrutiny to allow the valuer to determine the full market rental value of a property. The passing rent will not reflect the full market rent if a rent free period exists or existed or a premium was paid example so the valuer must obtain details of incentives to allow the adjustment of the rent before

relying on the transaction details as comparable evidence. The high percentages of respondents regarding all the data items as essential reflects the importance of lease incentive information.

The final part of this section of the main questionnaire survey asked respondents which data fields they would need to be able to query to retrieve comparable evidence. The results indicate that all the specified criteria were regarded as necessary for comparable selection purposes. It was therefore decided it was appropriate to develop a database that would allow queries by every data field and an unlimited combination of data fields.

Table 8.5 Comparable selection criteria

Comparable selection criteria	**Percentage regarding selection as essential**
Construction type	64
Data of comparable	98
Lease terms	88
Location	98
Price range	63
Services	59
Size	91

8.5 The development of the database structure.

The previous sections of this chapter have outlined the need for an effective database structure to act as the basis for a NVED. The same sections also described why existing database systems have failed in their attempts to provide such a suitable structure for an effective and efficient comparable system. Any such a system must meet the following criteria.

- It must run on software format familiar to users, this is almost certainly to be Microsoft Windows based.
- It must have an easy to use and self explanatory user interface.
- The entry of comparable data must be quick, efficient and simple.
- Any data contained within the database must be accurate.
- It must provide for the comprehensive recording of comparable evidence records.
- It must facilitate the uniform recording of data items probably through the use of standardised data entry techniques.
- Users must be able to print a record or number of records in full or in a summary format.
- It must permit the fast and effective use of query searches to retrieve relevant comparable evidence.
- It must permit the retrieval of comparable evidence based upon all data fields and any combination of data fields.
- It must allow the printing of retrieved comparable evidence.
- Metadata must be available to the user to allow an assessment of the quality of the comparable evidence quality.

The OCDS was developed using Microsoft Access version 2, then upgraded using Microsoft Access version 7 and completed in the latest version of Microsoft Access available in Microsoft Office 97. Microsoft Access is a relatively easy to use, but at the same time powerful, Windows based relational database package. Being Windows secures the major advantage of allowing the user to import data from the database straight into compatible word processing and spreadsheet packages. This enables the user to export data straight into valuation reports and into spreadsheets for further numerical and graphical analysis.

During various stages of the database design, valuers at both Sanderson Townend and Gilbert and Jones Lang Wootton were invited to comment on its structure, ease of use and general performance. Comments received were then incorporated into the design of the

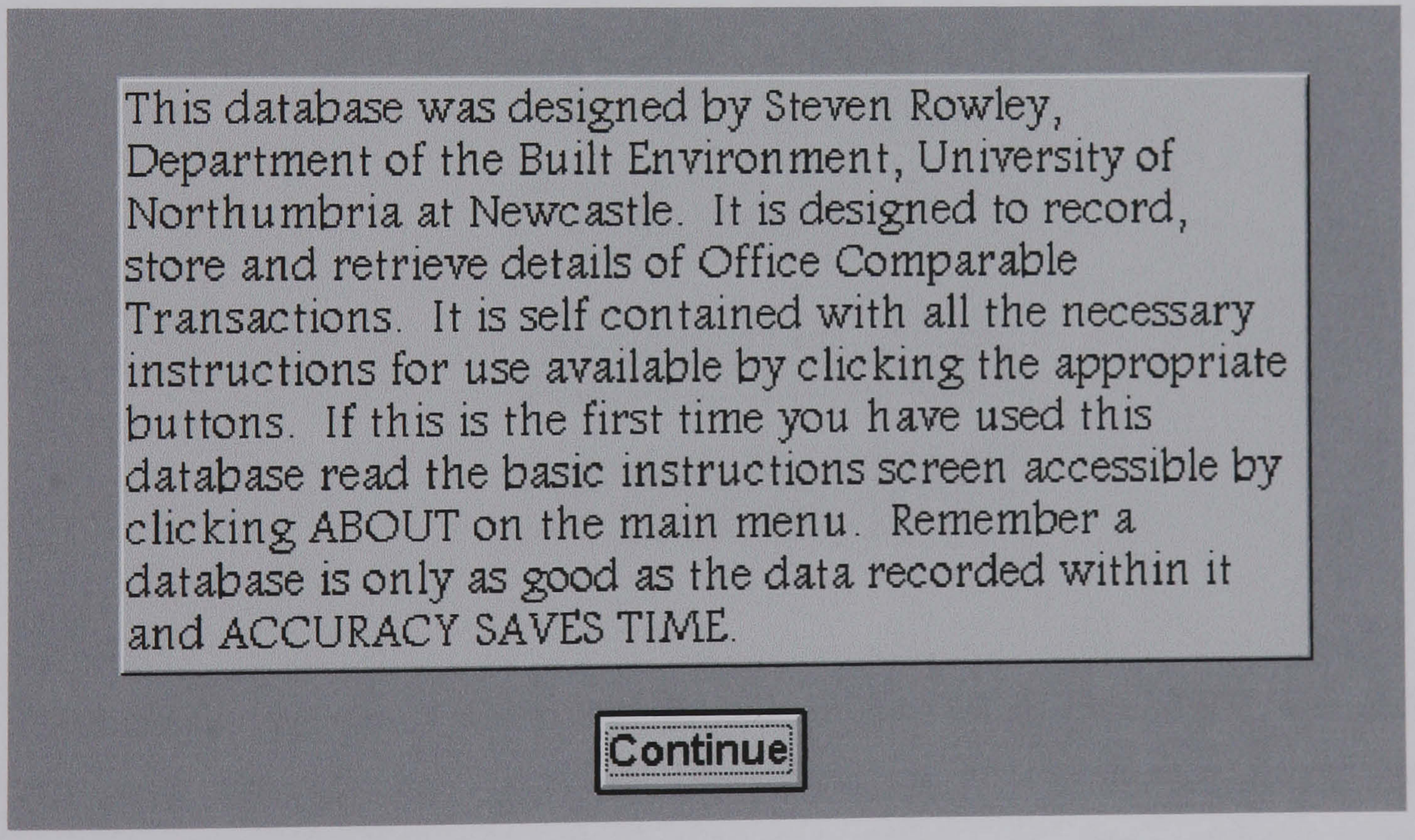
database where appropriate. This method of database design ensures that the database meets the requirements of the final users and provides all the necessary data.

The following sections outline the development of the various database components, beginning at the front end and working through, describing how they operate and also how the comments of the two participating firms were incorporated prior to the final evaluation and testing of the system.

8.5.1 Running the database

The opening procedure of the OCDS is governed by Autoexec macro. The macro's first action is to open an information screen, shown below, which provides general information about the database and the importance of accurately recording data.

Figure 8.1 Initial screen



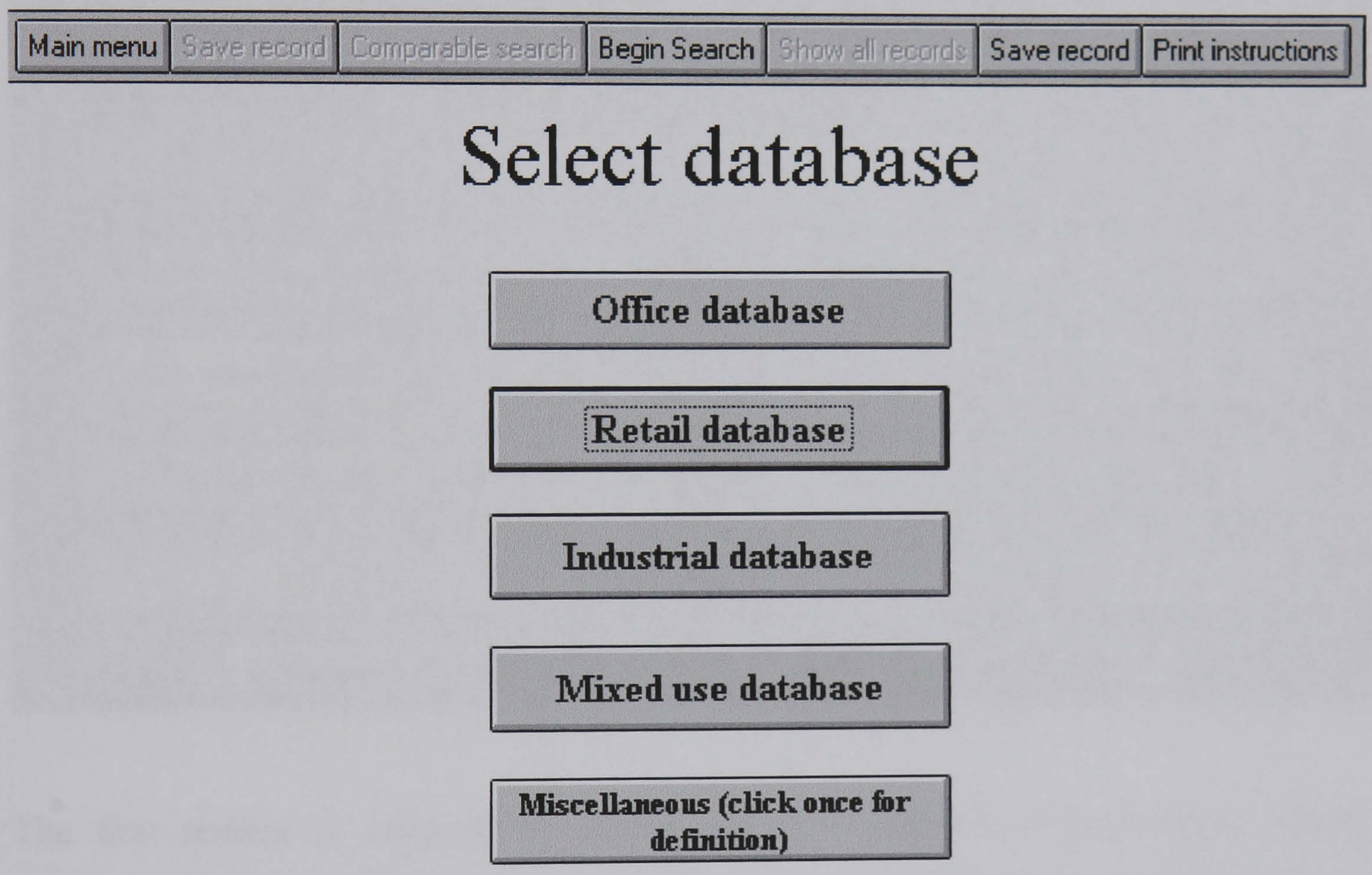
This screen may be closed by clicking on the continue command button or it will close itself after a time interval of 20 seconds. Command buttons are a common feature of this

database. They allow the attachment of macros which specify actions the database will perform when the user clicks on the command button.

8.5.2 The start-up menu

This menu is automatically opened after the previous screen is closed. This will be the screen from which users will chose the relevant database for the specific property type they wish to utilise.

Figure 8.2 The start-up menu



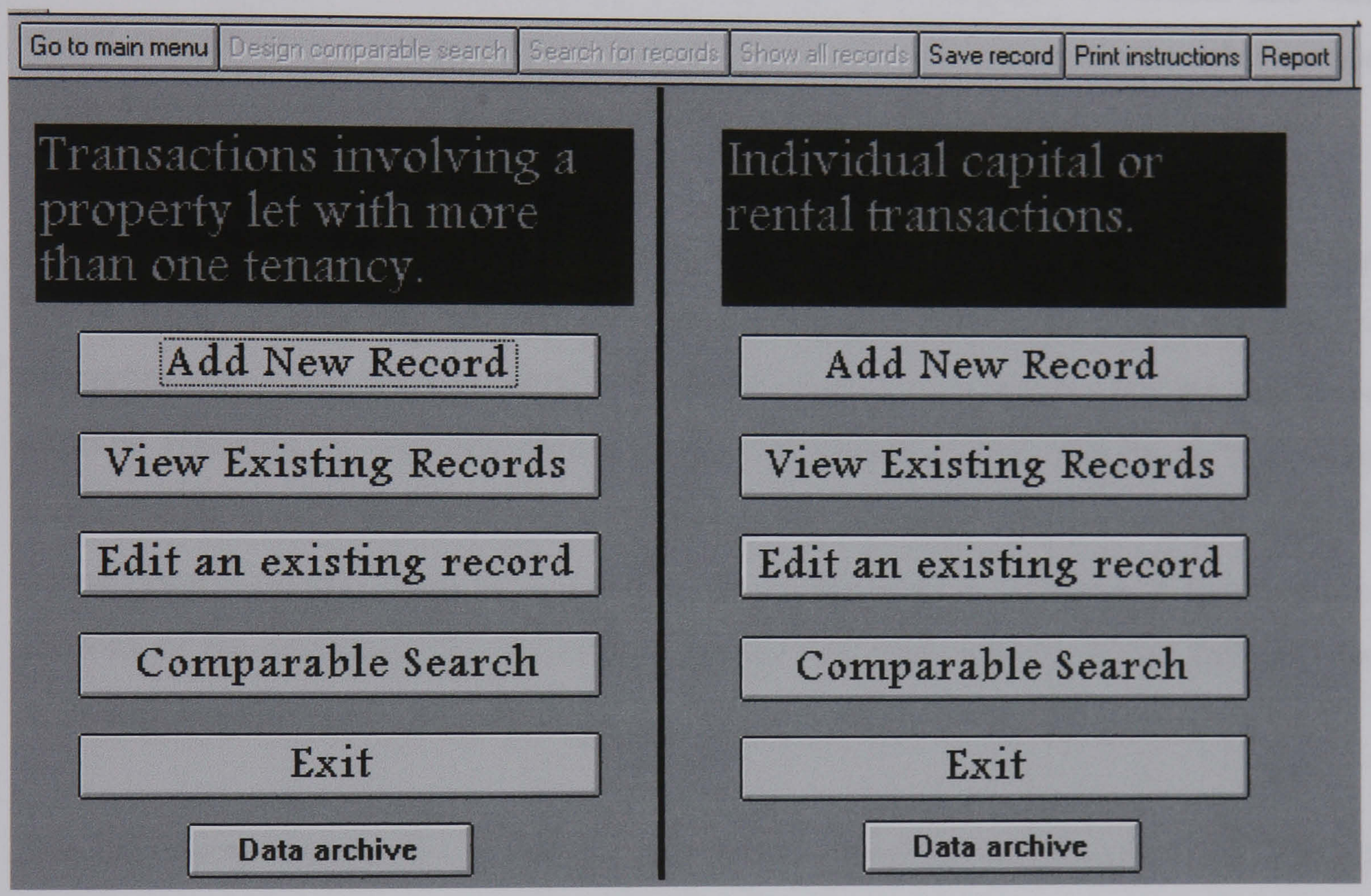
There are five options to chose from but only one of which leads into a 'live' database. The retail, industrial and mixed use databases are yet to be developed but could be attached to these command buttons and accessed from this screen. The miscellaneous database would contain all comparable evidence which does not fit into one of the other categories. It would include transactions relating to hotels and guest houses, leisure

facilities and vacant sites for example and may itself be split into several tables. Clicking on the office database button will take the user to the main menu of the OCDS.

8.5.3 The main menu

This menu screen is shown below and is split into two distinct parts.

Figure 8.3 The main menu



The first section is designed to record and store records of transactions where an investment property has been sold and that property is subject to several tenancies. The other section deals with transactions relating to vacant freehold properties or individual leasehold transactions. For example if an office block was purchased as an investment by a pension fund the comparable evidence will include details of the whole property including its sales price and characteristics. The property is likely to be subject to several existing tenancies all at varying stages of their term. In order to produce a valuation for an investment property it is necessary to establish the passing rent for each individual tenancy

and the number of years until the reversion to the full market rental value so the valuer can capitalise these future income flows. Valuers therefore need existing tenancy details to establish the passing rent and the number of years to reversion to determine how the final sales price was achieved. Available for each tenancy are the details of the passing rent, review patterns and other lease terms and any lease incentives in order to allow a valuer to use such evidence to establish the full market rental value of similar properties.

Any single tenancy transaction, such as a rent review for example, a freehold sale with vacant possession or a freehold subject to a single tenancy are recorded in the other section of the database. Each set of details are stored in a separate table.

Originally there was simply a single database table which dealt with recording the details of the property as a whole and any associated leasehold details. This was suitable for properties sold with vacant possession or single leasehold transactions but did not cover multi-let buildings. It was established, during an early evaluation session at JLW, that another table was necessary to record investment transactions as these were the type of transactions commonly dealt with by JLW. The change made it necessary to produce two sections of the database. The layout and operation of both sections of the database are dealt with in more detail in section 8.9.

The main menu contains five main command buttons which provide the user with different options. These options are:

- Adding a new record - This opens a blank database form into which a user enters new comparable evidence. A user cannot access any existing records from this point and no comparable searches are possible.
- View existing records - This option allows the user to view all records stored in the database. The records are read only so cannot be modified in any way. The user can scroll through all the records in the database, sort the records alphabetically by any field to aid manual searches or undertake a query search.

- Edit an existing record - This allows the original data recorder to search for an existing record using its comparable id and make any necessary changes or update the record if future transactions occur.
- Comparable search - This enables the user to undertake a comparable query search. Clicking on the button will access search instruction screens which guide the user step by step through the procedures involved in retrieving comparable evidence records.
- Exit - This button exits the database programme.

At the top of the main menu screen and throughout the whole database appears a custom menu bar. This menu bar performs several tasks, some of which may be undertaken at any time while others are only operational under certain circumstances. The menu bar is shown in figure 8.4.

Figure 8.4 The menu bar.

Instead of entering the psychology of software button design, words were used to make it absolutely clear to the user what the function of each button actually is. The "go to main menu" button takes the user back to the main menu at any time no matter where he/she is in the database. The "Comparable search", "Begin search" and "show all records" buttons are for use when viewing comparable records and allow the user to view the instructions relevant when undertaking a comparable search. The "save record" button allows the user to save a new record at any time although the database automatically saves any new data field entries. The "print instructions" provide a set of instructions that guide the user through the printing of one, several, or all records and the "report" button produces a summary report of comparable evidence.

The database has three main functions which are those of data entry, the viewing of existing records and querying for comparable evidence. Each function is identical for either section of the database and the next section examines the three functions in detail.

8.5.4 Data entry.

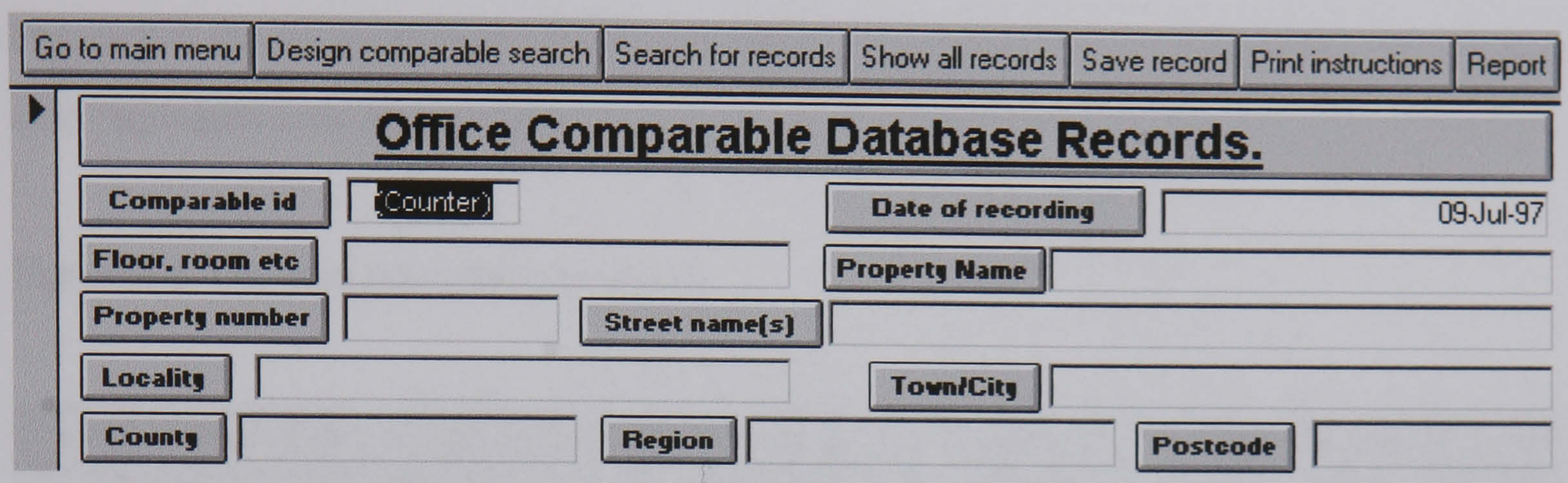
When a user clicks the "add new record" command button on the main menu screen the database opens a blank database form. This database form is where all data are entered, displayed and full records are printed. The type of database will determine the layout of the form and the presence or absence of certain data fields but the methods of data entry throughout are consistent. Each data entry field consists of a command button with the field name and a white data entry box directly to the right of the field name into which is entered the actual data..

Entering data into the database is a simple process. Although the number of fields in the database is large, a maximum of 105, the data entry methods employed make data entry extremely quick once the user is familiar with the database workings. Data entry revolves around a combination of typing data and selecting data entries from drop down menus. Drop down menus or lists are a quick and easy method of entering data and also permit the standardisation of data (see section 8.5.4.1).

The first field in each databases is the "comparable id" field. This is a unique number, entered automatically to avoid data duplication, which provides each comparable record with a unique identity and permits the linking of records with associated data stored in other related database tables. When a new record is opened the current date is entered directly into the "date of recording" field. This is important because it provides the subsequent user with not only a record of when the comparable was recorded but also, in combination with the "date of transaction" and/or "lease commencement date" field, the user can estimate the time elapsed from the transaction date to the date of its recording. This helps to provide the user with an indication of the quality of the comparable evidence

record. The remaining fields depend upon the database but figure 8.5 shows the typical layout of the first section of each database, the address section.

Figure 8.5 The data entry of address components.



For any data unique to a property the user must type in the entry as it is not possible to provide comprehensive drop down menus. This is achieved by clicking in appropriate data entry box and then typing in the data followed by pressing the return key which moves the user onto the next field.

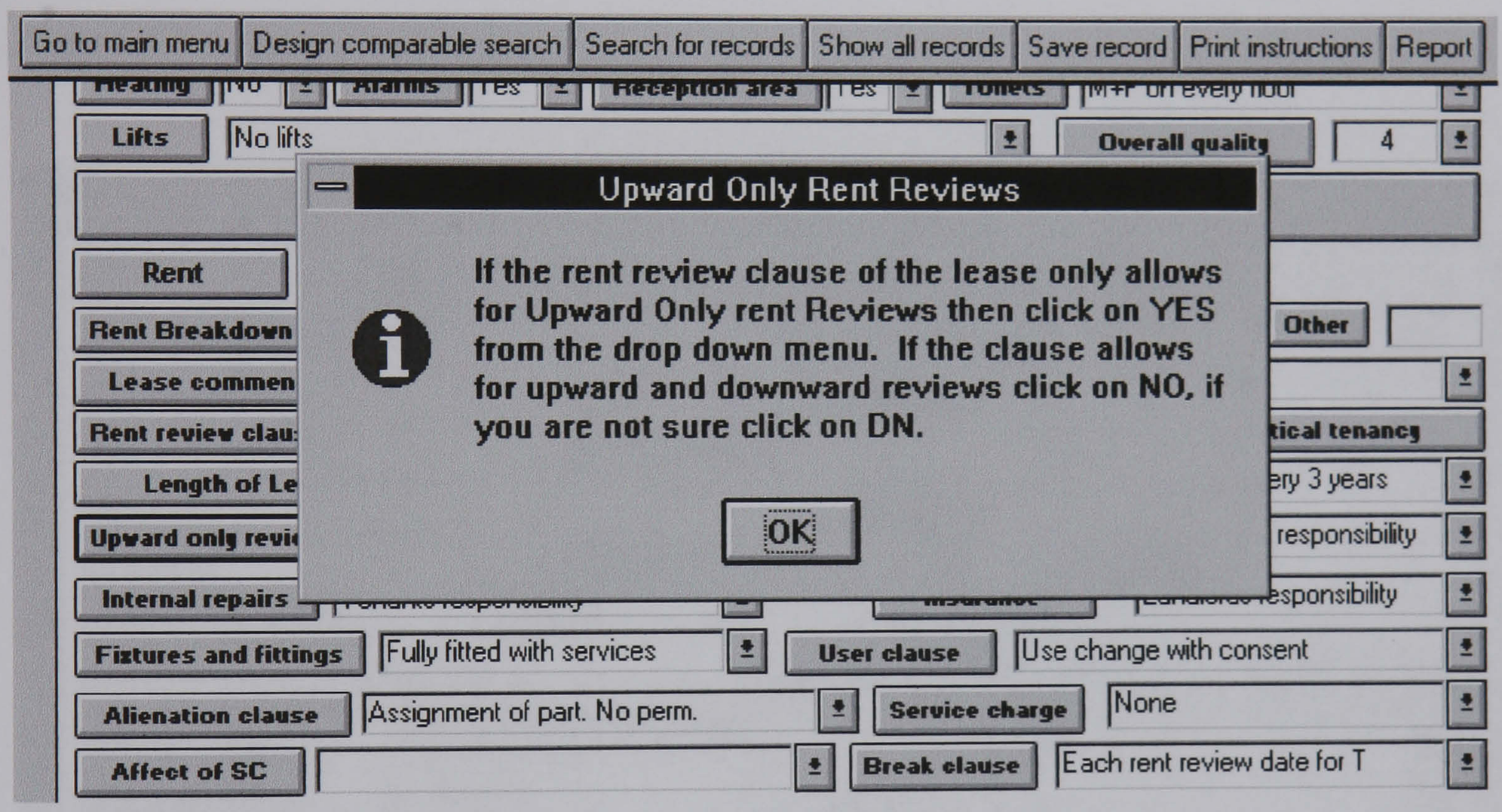
The address of the property is split into 9 information components or data items each of which is compatible with BS7666. When BS7666 becomes fully implemented and operational each property will be given a UPRN and each street a unique identifier. When such definitions become accepted, which will be initially within local authorities, they will filter into the private sector. Simple modification will allow the addition of the unique identifiers to the OCDS and exact address entries could be accessed from the Land and Property Gazetteer.

Existing systems suffer major problems of incorrect address recording. To overcome these problems a set of detailed and clear standards are necessary to direct the user in the correct recording of these data. Detailed guidance exists for the recording of each individual address item in the form of the accompanying recording standards. Each field name is a command button with an associated macro which, when pressed opens an information

screen containing the relevant standard. Attaching the standards in this way removes the need for users to refer to a separate manual. With instructions quickly and easily accessible users have no excuse for failing to refer to the standards when they are unsure what data to record in a data field.

Figure 8.6 shows an example of the recording standards, these standards are for the data field "upwards only rent reviews".

Figure 8.6 The data recording standards

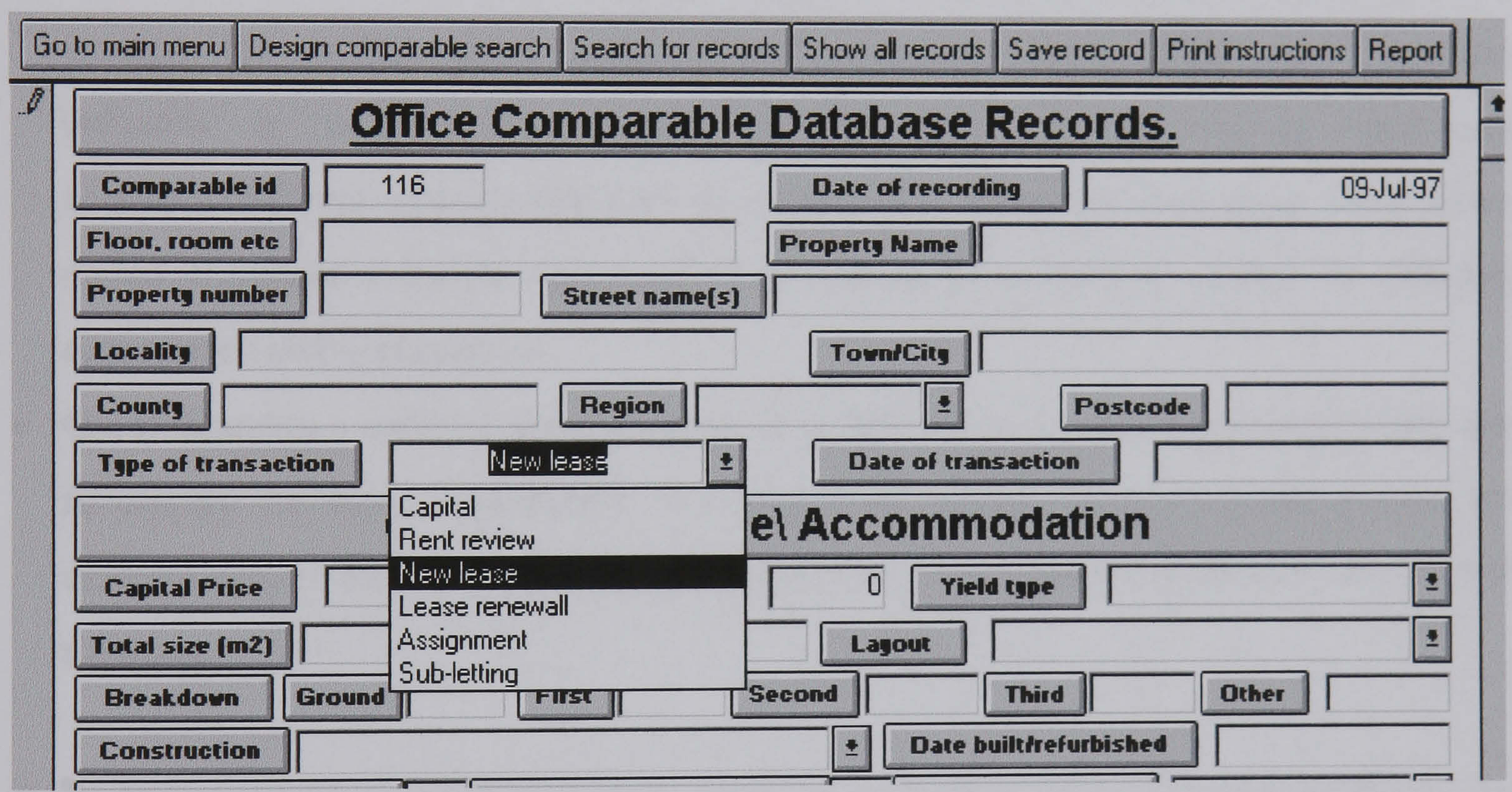


A user will enter each address component in accordance with the recording standards. When the user is familiar with the standards there will be no need to consult them and this will increase the speed of data recording. Each address component is unique and will differ for each record except for the "county" and "region" fields. These fields are served by drop down menus because there are a limited number of possible entries.

8.5.4.1 Drop down menus.

Drop down menus are a major data entry tool used in this database. In the largest database there are 105 fields, not all of which are relevant to each property and 41 of these are served by drop down menus. They operate by providing the user with a list of possible data entries for a particular data field. Where a drop down menus exists this is indicated by the presence of an arrow attached to the right of the data entry box. Clicking the arrow displays a list of entry possibilities. To select the appropriate entry the user simply has to click on that item of text and the text is entered into the field. In the unlikely event of data not being covered by one of the possibilities the user may type an entry directly into the data field. An example of a drop down menus is shown in figure 8.7.

Figure 8.7 A drop down menu.



Drop down menus provide several significant advantages.

- Speed - clicking on an item of text instead of typing it directly into the field saves time and effort, a concept important to surveyors.
- Ease of use - it could be daunting for a user to have to manually type every entry into the database. Permitting data entries using this method makes the database more user friendly.

- Accuracy - standardised lists not only avoid spelling mistakes which cause problems during query searches but avoid other simple mistakes such as entering 255 instead of 25.
- Uniformity - standardised data entry techniques improve the uniformity of the database. If all users use the same text to describe a common occurrence then they are aware of exactly what information the entry is attempting to convey. A common example may be illustrated by the "external repairs" field. Three possible entries exist. Firstly "landlords responsibility" indicating that the landlord pays for external repairs, secondly is the "tenants responsibility" indicating the tenant pays for external repairs and finally "within service charge" indicates a separate service charge is payable by the tenant to the landlord to cover the landlords expenditure on external repairs. Different users will have different methods and language usage to communicate those meanings. For example the "within service charge" entry may have read 'tenant pays for them indirectly' or 'landlord recovers costs through service charge' both of which may convey a different meaning although are supposed to mean the same thing. Drop down menus therefore promote data uniformity and avoid confusion caused by different expressions and explanations.
- Query searches - without standardisation it is difficult to retrieve all records which aim to convey the same information. To retrieve all records where a landlord pays for external repairs the user would have to query for every phrase written to convey this meaning.

Each data standard assigned to a drop down menu field provides detailed definitions for each data entry possibility ensuring the user selects the correct response.

Drop down menus are an extremely important feature of the OCDS and overcome many problems experienced by existing systems. Once users are familiar with the definitions attached to each drop down menu data item, some of which will rarely be used and others constantly, the recording of data in such fields will take only two mouse clicks. This ease

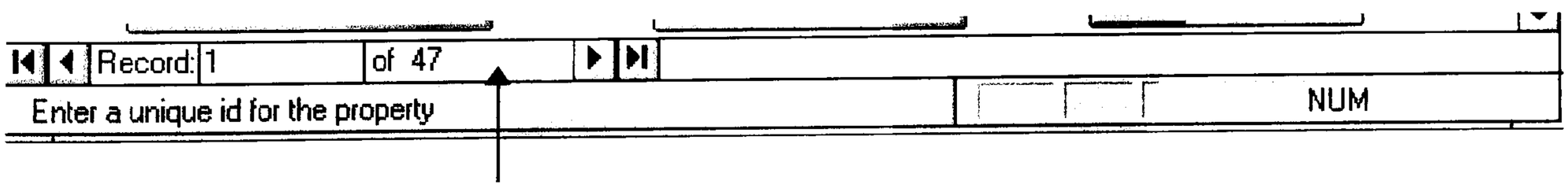
of use permits extremely efficient and quick recording of records for the experienced user and should encourage surveyors to use the system to record their data.

8.5.4.2 Completing the record.

Some data fields must contain data before a user can close the record and proceed to the next record or close the database. Examples include vital fields such as the "type of transaction" and date fields. If data are omitted an error message occurs which directs the user to input data into the field(s). Once the main record is complete it is necessary for the user to complete a Metadata form. The need for Metadata and the contents of the form itself are described later in the chapter but the Metadata are recorded in the same way as other data items using a combination of drop down menus and typing entries. Clicking on the Metadata command button on the form header opens the Metadata form. The Metadata form and main database form are linked through the comparable id of the property so which ensures whenever the main record is viewed clicking on the Metadata button will bring up the Metadata form relating to the same property as the main comparable record.

Once complete, the user may close the new record by returning to the main menu or add another record by clicking on the right hand arrow of the navigation bar at the bottom of the record (see figure 8.8). The previous record is automatically saved.

Figure 8.8 Record navigation and Metadata



Navigation bar

8.5.5 Viewing existing records.

Users of the system can view existing records in full by selecting the appropriate option from the main menu screen. Clicking on this option opens the main database form containing all the existing records sorted by their comparable id number. All records are 'read only' so no modifications are possible. A user can scroll through the records by using the navigation bar to go forward or back a record or to the first and last records in the database. Users can also sort records alphabetically or numerically depending upon the fields data type to aid any manual search. For example clicking in the 'town/city' field and selecting the quick sort option from the Access menu bar will sort the field alphabetically. This makes it easier for a user to identify all records in a particular city.

When viewing records, the user may use the print option at any time to print full records. The printing layout is set up to ensure one record prints to one page permitting the printing of a comprehensive record that may be pasted straight into a valuation report or consulted at a later date for further analysis. Included on the custom main menu bar are a set of printing instructions which guide the user through the printing of all or a selection of records contained in the database. An example of a printed record appears in appendix F.

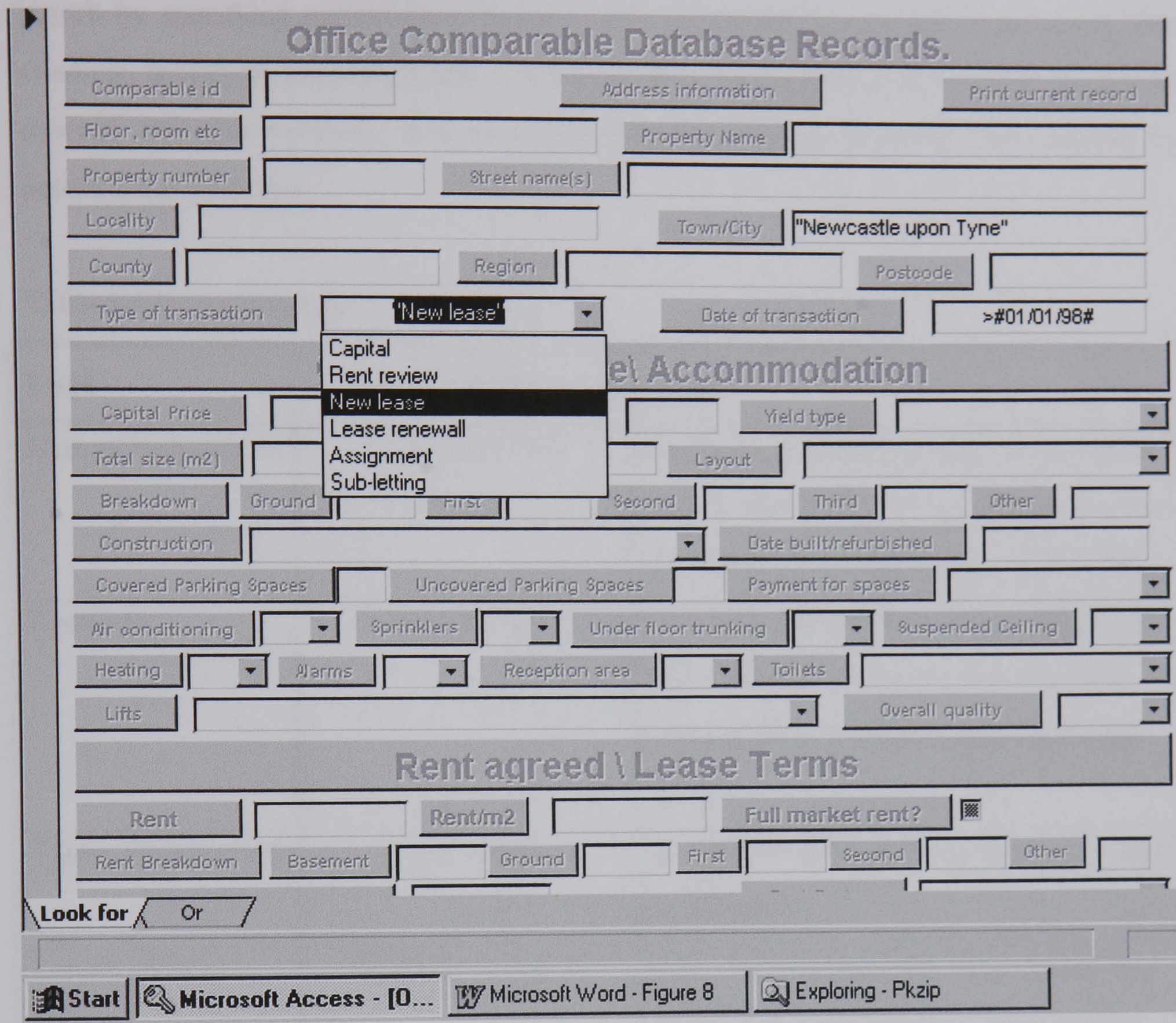
8.5.6 Comparable query searches

Comparable query searches are an essential feature of any effective database system and within the NVED will lead to the efficient and comprehensive retrieval of comparable evidence which meets certain previously specified criteria. Query searches allow the user to specify certain comparable features and retrieve any records that match these features. For example, a valuer in Newcastle upon Tyne may wish to locate any capital transaction comparable records on Grey Street. To do this the valuer would enter the criteria 'Newcastle upon Tyne' into the 'Town/city' field, 'Grey Street' into the 'Street name' field and 'Capital' in the 'Type of transaction' field. The database search engine will retrieve any records that match all these criteria and these records will appear in full, in a read only

format, in the main database form. The user can then view or print these record or perhaps narrow the query search further.

Clicking on the 'comparable search' option from the main menu opens an instruction screen which provides the opportunity for users to view the set of instructions relating to the use of query searches or go straight to the search. The instructions are shown in Appendix G guide the user through the three stage process of a comparable search illustrated. The simple example shown in figure 8.9 below would retrieve any records with "New lease" in the "Type of transaction" field, Newcastle upon Tyne in the "Town/City" field and with a date of transaction after 1/01/98.

Figure 8.9 Comparable query searches.



Where a user is trying to identify leasehold comparables he/she may wish to narrow a search by specifying certain lease terms which comparables properties must match. For example, specifying properties with 15-25 year terms on 5 yearly review patterns and with upward only rent reviews. It is possible to retrieve records matching these criteria by entering the following.

Table 8.6 Query example

Field	**Criteria**	**Affect**
Date of transaction	>01-Jan-1997	Retrieves transactions which took place after 1-Jan-1997 (1997 in full to alleviate problems of searching past year 2000).
Postcode	NE1 or NE2	Retrieves all records in postal regions of NE1 and NE2. Alternatively NE* will retrieve all postcode records beginning NE
Type of transaction	Not Capital	Selects all transaction types except capital transactions.
Length of lease	Between 15 and 25	Retrieves records with lease lengths of between and including 15 and 25 years.
Review pattern	Every 5 years	Retrieves records with rent reviews every 5 years
Upward only reviews	Yes	Retrieves records with only upward rent review clauses.

By allowing the use of simple words such as 'between', 'and', 'or' and 'not' makes possible complex searches for any number of criteria in any number of fields. Such searches will allow researchers in professional firms to identify rental and yield trends in particular regions or cities and patterns of lease negotiations by allowing the retrieval of records satisfying specific criteria. Such searches are also valuable for academic research permitting

the isolation of value characteristics to determine their individual influence on value. This concept is discussed in the next chapter.

Comparable searches provide the valuer with an extremely flexible tool for the location and retrieval of comparable evidence. When a database contains several hundred records, which the NVED will invariably do, it is not feasible for a valuer to look through all the records to select the relevant comparables or even all records for a particular city. A valuer needs to be able to narrow a search to comparables that match certain criteria that are relevant to the subject property. Using a computerised search correctly, it is unlikely that a query will miss any relevant records, a scenario which is always possible with a manual search. The NVED will eventually permit the user to select the properties that are comparable by location through the GIS base of the NLIS and by querying the database using city and street names and/or postal codes.

8.5.7 Summary reports.

A user can print all retrieved comparable data as individual records or as a whole. The user may also utilise reports to summarise this data for analysis or perhaps to identify which records to consult in full or where to further narrow a search. Clicking on the 'Comparable search' button on the custom menu bar brings up a new screen containing a button 'Summary report instructions'. These instructions (appendix Gii) guide the user through the creation of a report to summarise the retrieved comparable evidence. Reports are based upon queries and once a user specifies the query, the report is produced based on these criteria. Clicking on the 'Report' button produces the summary report an example of which is shown in figure 8.10.

8.5.8 Editing an existing record.

The 'Editing an existing record' option is necessary to permit the updating of comparable records, the removal of outdated records and the correction of inaccurate records. It is

undesirable to allow editing access to every user for reasons of security so access is restricted. To limit access a password protection system will allow only registered users editing access to the full set of records to perform modifications. Unfortunately any users allowed access to the editing option have the ability to alter any record contained in the database and not simply the records they themselves recorded, although it is unlikely that there is any advantage to be gained from altering existing records. When a new transaction occurs and an existing record already appears in the database the user can either update the existing record with permission from the administrator or enter a new record and request the administrator to delete the original.

The overall NVED database administrator will be responsible for removing outdated records and placing these records in a data archive. An archive file will be useful for rent reviews, rating valuations and other historical evidence as well as for the production of trends and statistics. The file will include any records with a transaction date preceding

Figure 8.10 A summary report.

Comparable search output

11-Jul-97

Comparable id: 58

Floor:

Property number:

Property name: Anyprop

Street name: Grainger Street

Town: Newcastle

Postcode: NE1 5TH

Region:

Date of transaction: 20/04/96 **Type of transaction:** Lease renewal

Capital price:

Rent agreed: £40,000 **Rent per m2:** £97.56

Size(M2): 410

Covered parking: 3 **Uncovered parking:** 1

Air conditioning: Yes **Sprinklers:** No

Suspended ceiling: Yes **Reception area:** Yes

Heating: No **Overall quality:** 4

Lease Terms

Lease commencement date: 20/03/96

Length of lease(years): 21

Review pattern: Every 3 years **Upward reviews only:** Yes

External repairs: Landlords responsibility

Internal repairs: Tenants responsibility **Insurance:** Landlords responsibility

Lessor:

Lessee:

COMMENTS

the current date by more than 6 months. The administrator will undertake regular searches to identify the relevant records then export these records to the data archive table. This data table will be accessible through the data form which is identical to the form used to view and print 'live' records. To access the data archive the user selects the "data archive" option from the main menu screen.

8.6 The data structure.

The following sections explain the development of the database structure and also describe the final database version in terms of the data it contains and the facilities it offers.

8.6.1 The development of the database structure.

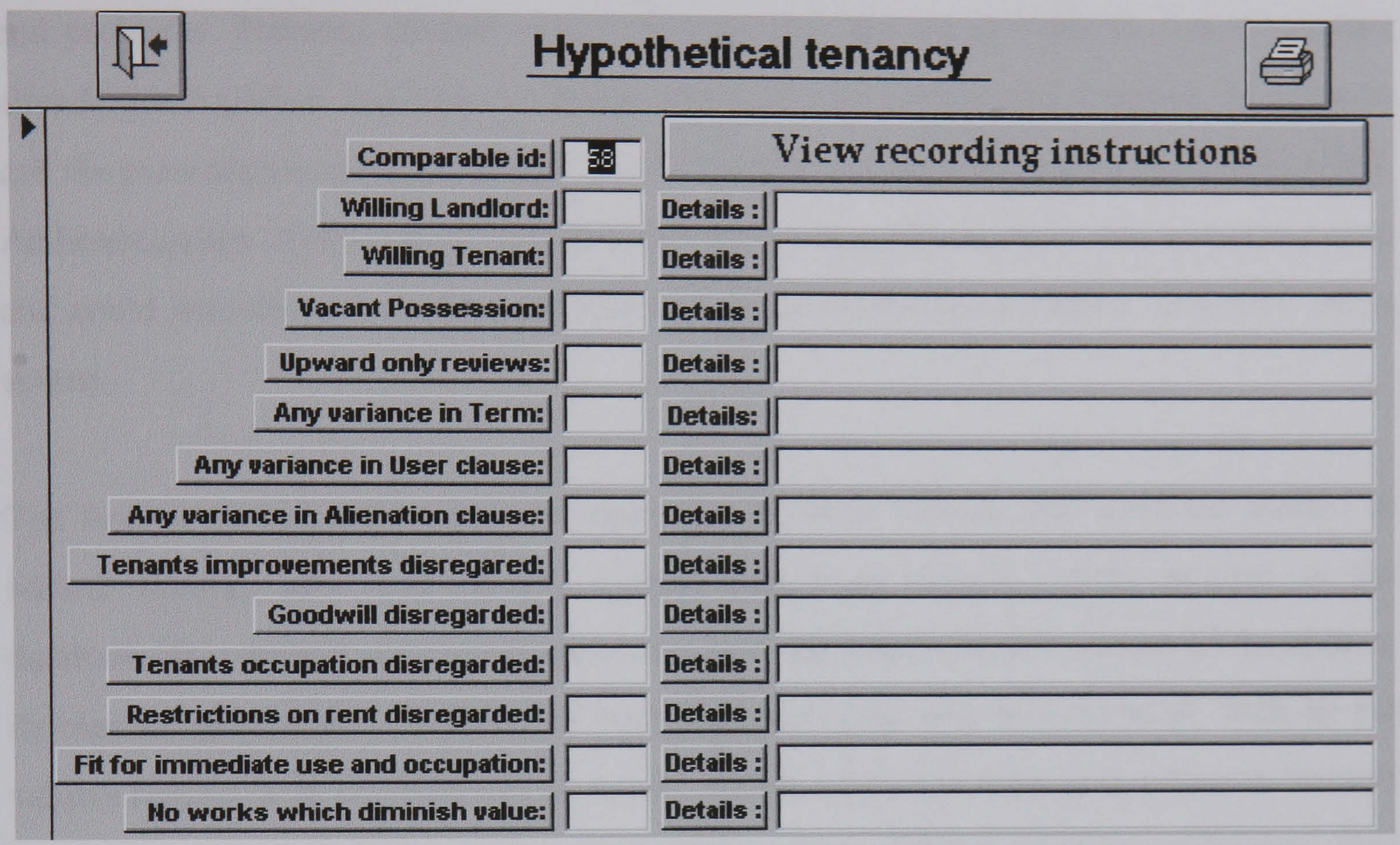
The development of the final database structure took place during series of stages which involved two professional property service providers, Sanderson Townend and Gilbert in Newcastle and Jones Lang Wootton in London. The design methodology included an initial development stage followed by testing at the Newcastle firm, modification and improvement, re-testing at the Newcastle firm and subsequent modifications and improvements. Testing then moved on to the London firm and also included relevant modifications and improvements. The substantial involvement of valuers from both firms was designed to ensure the database provided the end users with exactly the system that they required. After the development stages the final database was evaluated within both firms in terms of its performance and applicability. The results of the evaluation are discussed in section 8.8. The following sections examine the gradual development of the database structure and, in particular, the main database form as this is where the majority of the valuer interaction occurs.

8.6.2 The database trials

Both of the main database forms which constitute the majority of the visible database workings were designed from an original database form created at the beginning of the development stage. The original form was designed to encompass all capital and rental transactions in whatever guise they appear. The initial trial of the database took place at STG where feedback was extremely encouraging with valuers commenting the system was a vast improvement on their existing system in terms of its data coverage, user friendliness and efficiency. The main modification required by valuers at STG, apart from the addition of minor fields such as "region", was the way in which the database dealt, or rather did not deal, with rent review data. The modifications created a new form which was added specifically to record rent review data. It was possible to attach this new form to the main database form to overcome the need of developing a completely new section of the database. The reason for this explicit treatment of rent review data revolves around the concept of a hypothetical tenancy. The rent negotiated at rent review may be based upon either the prevailing lease terms of the tenancy or on a set of hypothetical lease terms, the choice of which is determined in the rent review clause. In order to distinguish between the two possible methods of deriving a rent at review, the database contains two additional fields and a separate form. Firstly the "rent review" field requires the recording of the method used to negotiate the rent at review, be it a negotiated settlement between the two parties, via arbitration, via meditation or through the intervention of an independent expert. The "rent review clause" field follows the "rent review" field and records whether the rent negotiated during the review was based upon prevailing lease terms or the hypothetical tenancy. If the review was reliant upon existing lease details then no further data need be recorded as future users of the comparable can identify the factors of the negotiation from the lease details existing on the record. However if the rent was based upon a hypothetical tenancy then the valuers at STG felt it vital that a valuer could obtain details of this tenancy for comparable purposes otherwise the rent may be incorrectly taken to represent the value of the prevalent lease terms. The new form named "hypothetical tenancy" linked to the main

record through the property's comparable id and is designed to record these hypothetical details. This form is shown in figure 8.11.

Figure 8.11 Details of a hypothetical tenancy



The recording standards attached to the hypothetical tenancy form pose a question for each hypothetical term and the user, when recording the data, simply has to answer the question with a yes or no response and enter this response into the correct field. For example the field for "upwards only rent reviews" poses the question 'did the hypothetical tenancy specify upwards only rent reviews?'. If there are any other details relevant to the term these may be entered in the accompanying details text box.

Once the modifications from the first trial were complete the database was re-tested at STG. This time the same valuers who initially tested the system were satisfied with the way in which the database dealt with rent reviews and felt that the addition of a separate form did not detract form the efficiency of the database. No further major modifications were

recommended so a date was set for the evaluation of the final database which would take place after the next set of trials at JLW.

The JLW section of the trial aimed to test the database from the viewpoint of a major practice as opposed to a regional practice dealing with different types of valuation tasks and problems. Previous contact with JLW indicated that the investment department had already developed an application utilising Access for investment and portfolio information and the presentation of trends and statistics.(The full details of the system are confidential). An investigation of the system identified that the comparable database was complementary and could actually be linked to the system and accessed from a shared 'umbrella' menu screen.

The first JLW trial involved the co-operation of three valuers who used the system to record 'dummy data' and retrieve specific data from records already present on the database. The valuers were again impressed with the comprehensive nature of the system, its ease of use and the efficiency of both data recording and data retrieval. With all the valuers familiar with the basic use of Access it took only a few minutes for them to become confident with the workings of the system. The valuers outlined several modifications they believed necessary to improve the overall quality of the database and make it operationally specific to a firm of JLW's size. The majority of valuation work for small and medium sized firms is based around single transactions such as the sale of small vacant office properties or properties subject to only a single tenancy. The situation is different within large practices and a substantial amount of their valuation work is comprised of major investment properties subject to numerous tenancies. It was felt that the original database that worked for STG would be of limited use for JLW unless it were modified to deal with multi-let properties. The database would have limited use because where an investment property is sold the comparable evidence is made up of the main building details and the tenancy details which provide the income flows capitalised to establish the capital price. Without details of all tenancies the valuer could not identify cash flows and yield levels. To include all the tenancies in the original database would necessitate a separate record for

each causing problems of, firstly, identifying all the details of a single investment property and, secondly, the retrieval of the evidence. A solution was developed which split the database into two sections which is how the database appears in its final version. The investment section comprises a main database form linked to separate forms containing the details of each individual tenancy. Only one main record appears in the database but users can easily obtain details of the tenancies of that property and so establish income flows in order to derive yields and other comparable information.

Further modifications resulted in the addition of summary reports, minor fields such as capital incentives and a change in the treatment of the repairing covenant. After the modifications were made, the database was ready for the final evaluation procedure, see section 8.11

8.6.3 The individual capital or rental transaction database

The database form is shown in full in figure 8.12 below and split into four distinct data areas.

Go to main menu | Design comparable search | Search for records | Show all records | Save record | Print instructions | Report

Office Comparable Database Record

Comparable id (Counter) | Date of recording 08-Aug-97

Floor, room etc | Property Name

Property number | Street name(s)

Locality | Town/City

County | Region | Postcode

Type of transaction | Date of transaction

Capital price\ Size\ Accommodation

Capital Price | Yield % 0 | Yield type

Total size (m2) | Number of floors | Lagout

Breakdown | Ground | First | Second | Third | Other

Construction | Date built/refurbished

Covered Parking Spaces | Uncovered Parking Spaces | Pagment for spaces

Air conditioning | Sprinklers | Under floor trunking | Suspended Ceiling

Heating | Alarms | Reception area | Toilets

Lifts | Overall quality

Rent agreed \ Lease Terms

Rent | Rent/m2 | Full market rent?

Rent Breakdown | Basement | Ground | First | Second | Other

Lease commencement date | Rent Review

Rent review clause | Details of hypothetical tenancy

Length of Lease (Years) | Review pattern

Upward only reviews | Rateable value | External repairs

Internal repairs | Insurance

Fixtures and fittings | User clause

Alienation clause | Service charge

Affect of SC | Break clause

Outside Landlord and Tenant Act 1954 | Strength of tenant covenant

Incentives, Marketing and Additional Information

Rent free period | Duration of period | Reason

Premium | Reason for premium

Reverse premium | Reason for reverse premium

Capital Incentives

Active marketing? | Length of marketing? | Arms length deal?

Lessor | Lessee

Additional comments

The first concerns the address of the property, relevant dates and the type of transaction. The recording date is automatically entered and cannot be modified which means subsequent users are aware of the correct date of recording. The second area records the capital price of the property, where relevant, its size and the accommodation. The size of the property is recorded as a total in square metres and is also broken down by floor. Opening the recording standards presents users with a data conversion box where they may enter a value in square feet press return and an accompanying box displays the equivalent value in square metres. The remainder of the section records general details such as construction and parking data including how payment for the spaces was made, for example the cost was included in the capital price or was reflected in the annual rent. This allows the valuer to determine the price per parking space for comparable purposes.

The presence of certain services such as air conditioning and alarms is indicated by a yes or no response. A description of the toilet and lift facilities available is also included. The final data item of the section is a description of the overall quality of the accommodation and services. This field employs a rating scale of 1 to 5 which is defined in detail by the recording standards to make the choice of rating category less subjective (see appendix Giii for the rating scale definitions). Users select the appropriate rating giving their assessment of the particular property.

The third data area includes details of the rent agreed and the lease terms. Here the rent recorded is automatically divided by the total floor area to provide a rent per metre squared figure. If the rent is a full market rent then the data recorder will tick the yes/no box next to the field. The rent may differ for each individual floor so there is a provision to record the rental value for each floor. The remainder of the section records the lease terms of the property and uses drop down menus to standardise the possible entries. This section includes the rent review fields and a command button labelled "details of the hypothetical tenancy" allows the viewing or addition of data. Finally a rating scale is again used to establish the strength of the tenant covenant with 1 indicating the weakest covenant and 5 the highest.

The final area of the form records the specifics of capital and lease incentives and marketing history. The first seven fields deal with lease incentives and the reasons for the presence of the incentives. For example a premium of £2,000 may have been paid by the tenant and the reason field records that the premium was paid to compensate the landlord for the cost of fitting out works undertaken prior to the commencement of the lease. Three fields deal with the marketing of the property including details of whether it was actively marketed or sold in an 'arms length deal'. Finally the lessor/vendor and lessee/purchaser fields record the details of the parties involved in the transaction. There is also an additional comments section where a valuer may comment on unusual details of the transaction but only where these details are absolutely necessary and there is no provision for the recording of these details elsewhere on the form.

The database form is designed to record all comparable characteristics that influence price or rental value to enable the valuer to use the record as detailed comparable evidence. If valuers record data correctly by following the recording standards and instructions the form will provide evidence of the highest quality.

8.6.4 Transactions involving a property subject to more than one tenancy

Figure 8.13 below displays the main form of the investment section of the database. This form records the details of the investment property which may be subject to a number of individual tenancies.

Figure 8.13 Investment database form

Go to main menu | Design comparable search | Search for records | Show all records | Save record | Print instructions | Report

Office Comparable Database Records.

Comparable id (Counter) Date recorded 08-Aug-97

Address

Floor, room etc

Property Name

Property number

Street name(s)

Town/City County

Postcode Region

Transaction details

Type of transaction Date of transaction

Number of tenancies Go to/add individual tenancy details

Capital price\ Size\ Accommodation

Capital Price Yield 0 Yield type

Total size Number of floors Layout

Ground First Second Third Other

Construction Date built/refurbished

Capital Incentives

Active marketing? Length of marketing? Arms length

Other details

Vendor Purchaser

Additional comments

The form begins with the comparable id of the property and the date of recording, both of which are automatically entered. The first data area concerns the address and the basic transaction details. The transaction details include the "type of transaction", although this will normally be a capital one, and the transaction date. The user also records, in this section, the number of tenancies to which the property is subject. The "Go to/add individual tenancy details" command button opens a related form which records/displays the details of each individual tenancy. This is examined in more detail later in the section. The third area examines the capital price of the property and the yield data with the remaining fields concentrating on the size of the property and any capital incentives. These data are recorded in a manner identical to that described in the pervious section. The final area, "other details", simply records the parties to the transaction and any vital additional comments.

The "Go to/add individual tenancy details" command button accesses the related form which records and displays the tenancy details. The two forms are linked through the comparable id of the property and when a new tenancy form is opened it is immediately linked to the main form through the adoption of the specific property id. The tenancy form is very similar in design and contents to the individual transaction form described in the previous section with the only difference being the removal of any items that relate to a capital sale.

This form overcomes the problem of multi-let properties previously ignored by existing comparable database systems by providing a mechanism to link the main record with the individual tenancy records. Without this feature a separate record would be necessary for each tenancy substantially increasing the number of main records in the database, slowing comparable searches and hindering the efficiency of the database.

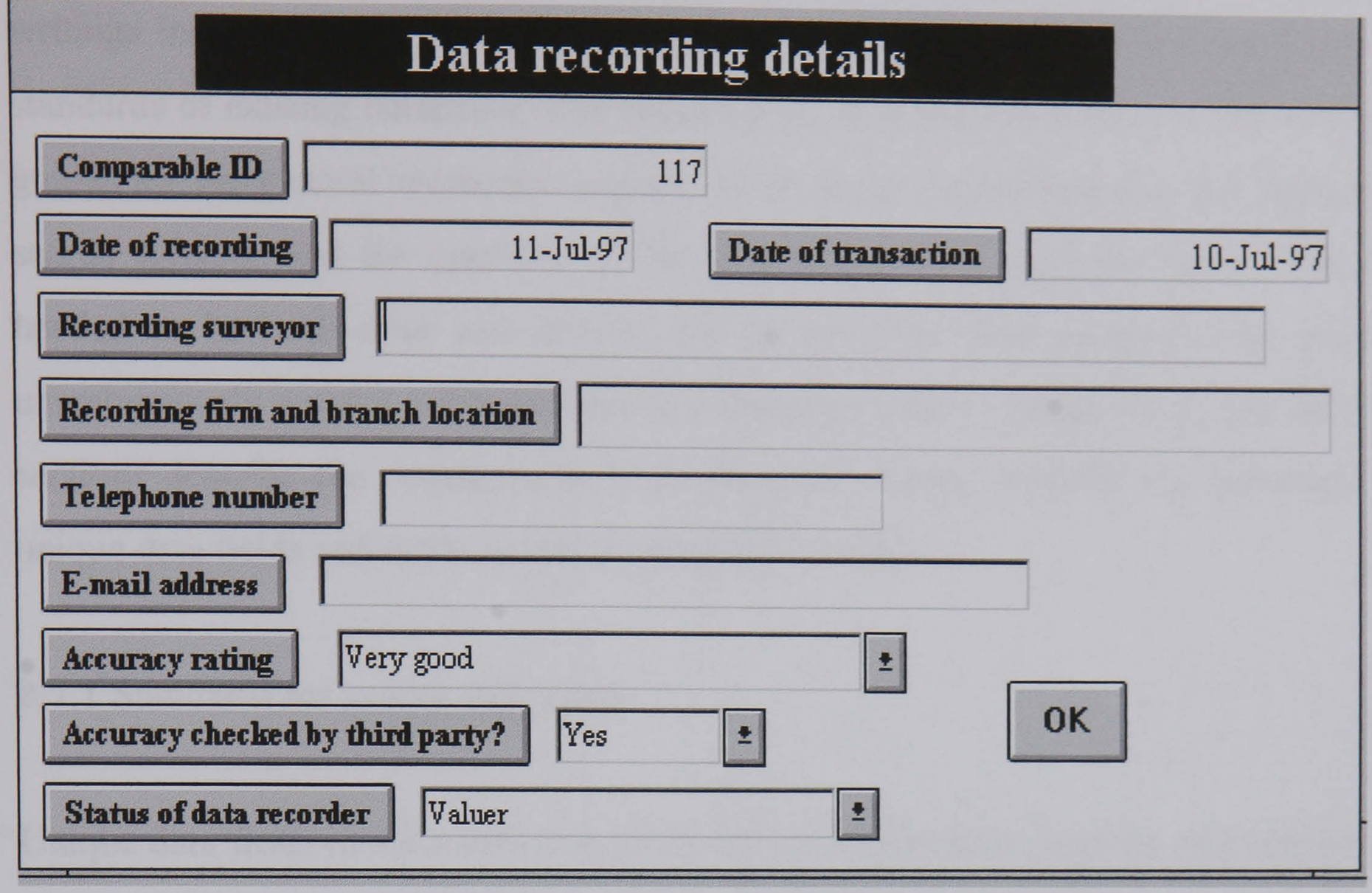
8.6.5 Metadata.

The concept of Metadata was explained in chapter 5 (section 5.2.4) and is basically defined as data about data. Metadata items are included in this database to provide users with the ability to determine for themselves if a particular item of comparable evidence is suitable for

their purposes. All recorded data should be as accurate as possible and where accuracy is assured, users are able to rely on these data for comparable evidence. However there may be situations where a data recorder has failed to record data correctly, has forgotten to do so or has passed the recording duties onto the third party. It is vital that future users of the comparable evidence are aware of any failings in the data that may result in a reduction in its quality. If data recorders follow the database instructions and data standards there should be few problems of inaccuracy but where the possibility of inaccuracy occurs valuers will not wish to place emphasis on that evidence. The Metadata form attempts to provide the valuer with a method of assessing accuracy and the ability to contact the data recorder, that is the party involved in the transaction, for further details of the evidence in the unlikely event that the comparable record does not provide completely comprehensive evidence.

Figure 8.14 shows a copy of the Metadata form which is recorded for every record on each separate form be it the individual transaction form, the investment form or the individual tenancy details form. The Metadata form is linked to the main record through the comparable id and it is possible to view the form at any time.

Figure 8.14 The Metadata form



If instructions and standards are followed correctly and the recorder is sufficiently knowledgeable about the transaction then there should rarely be concerns over the accuracy of the data.

8.7 The development of the valuation data recording standards.

Standards are essential to the efficient operation of any database system because without them users cannot be expected to record the appropriate data into the appropriate fields if they have no definition of what those data should be. Valuation data recording standards are designed to guide the database user through the accurate and uniform recording of comparable evidence and accompany every data field. They are accessible by clicking the appropriate data field. An example was shown in figure 8.6.

The standards were developed alongside the database structure and were piloted at the database trials. They were created from a combination of other data standards such as

BS7666 and the RICS code of measurement practice, definitions from text books, journal writings including lease incentive definitions, the examination of numerous leases and the standards of existing databases. The development included the writing of the data recording guidelines, the general instruction screens, for example the printing data and designing query search screens, and the creation of the drop down menu response items. The standards needed to be both clear and concise but at the same time convey strict guidelines to unambiguously instruct different users to uniformly perform similar tasks. The following two sections describe the development procedure and outline some of the standards for both unique data fields and fields served by drop down menus.

8.7.1 Standards for unique data items.

Unique data fields contain data that varies for each individual property and requires the user to type the correct data into the field box. Most of the address fields are examples of these unique data as are the number and date fields.

The standards for the address fields were based around BS7666 with the recording of the address split into specific items. This method of recording the address required a standard for each address component. Some of the standards were straightforward such as the "Town/City" field with the user instructed to record the postal town or city. The data necessary for the "postcode" field is also simple to identify and extremely important at the same time. The remaining data fields proved more problematic. As two surveyors may know a property by different identifiers a method was necessary to ensure the uniform recording of the address. The simplest way of doing this was to instruct users to utilise the full postal address of the property and where the postal address includes commonly used identifiers for the property to record these as well. Where comparables are retrieved by address the main problem is the valuer being unable to retrieve a property because the name they use to identify the property has not been recorded. The database overcomes this problem by recording all the property descriptors in the various address fields so when a valuer undertakes a search using one of these names the database will retrieve the appropriate

record. An even simpler method that users are encouraged to use is to retrieve comparables using the postcode or even the first units of the postcode, for example NE1. Even if the recorder fails to record the main address of the property correctly retrieving all records in that area using the postcode should allow the user to search through the few filtered records and identify the object of the search. The postcode standard field therefore emphasises the importance of recording the postcode correctly, where this is not known, to identify the correct code, at worst, enter the first unit of the postcode. The use of the postcode in this way, which will be replaced by the use of UPRN's following the practical implementation of BS7666, will ensure the efficient retrieval of comparable evidence.

Numerical fields each have their own specific definitions but the formatting of the numerical value when entered into the field is controlled by the database. For floor areas units are defined in square metres. Where users are not used to square metres a conversion mechanism is available within the "size" field standard. Currency fields also have their own specific definitions which require the recording of various capital amounts or rental values recorded in legal documents such as the lease.

8.7.2 Standards for drop down menus

Drop down menus although providing the user with a list of possible recording options often require more complex accompanying standards than unique fields to ensure the selection of the correct data. The drop down menu lists of possible responses were generally created from the examination of numerous leases to derive a wide range of common and possible responses or through the lists of responses provided by other database for example the list of regions and counties from numerous property agency databases on the internet. The procedure for the creation of the standards began with the list of possible responses followed by a definition of each response and occasionally a scenario illustrates the correct use of a response. Also included is an introduction to the standard providing general comments and instructions.

Many of the response choices are obvious, for example the users will know exactly what type of transaction they are dealing with so can simply choose the correct option from the list of "capital", "New lease", "renewed lease", "rent review", "assignment". The majority of the drop down menus serving lease terms will involve selecting the response which corresponds to the appropriate lease term. For some of the lease fields the responses overlap but there is always a clear distinction between responses so that the user should know exactly which one to choose.

The main problem surrounding the production of drop down menus is for data fields that are not defined in a lease or cannot be narrowed to three or four obvious responses. Fields such as "toilets" and "reason for premium" are examples of such. The simplest solution would be to leave these fields as unique data fields but this would increase recording time and reduce the efficiency of the database. For these fields as many of the realistic responses as possible were written to cover the majority of possible scenarios. If the actual scenario is not covered then users may type the correct response by treating the field as they would a unique data field. Fields that may be treated in this way are not those that users would commonly, if ever, utilise as part of a comparable query search so uniformity is not a vital requirement. The search mechanism will display the list of all responses that appear in the field throughout the database so the user may select any of the list items or any unique responses that are consistent with the overall search criteria.

8.7.3 The testing of the valuation data recording standards

Once completed the full set of recording standards attached to the database were tested, firstly upon members of staff at the University of Northumbria. The testing involved the reading of the standards for each data field and the subsequent suggestion of any additional items required in the drop down menus or modifications necessary to the standard's language or overall definition. Appropriate modifications were made and then the standards were tested during the database trials at STG and JLW. Both groups of valuers were impressed with the on-line method used to access the standards and commented that the

method would encourage their use. Even so they still felt that a paper set of standards were also necessary to make the user feel more 'comfortable'. During each trial stage valuers were asked to access random standard screens, read them, apply them to the database and then comment on their effectiveness. The comments were noted and occasionally included necessary additions to drop down menus and alteration of a definition. During the final evaluation stage of the database respondents were asked to comment on the overall performance of the standards and the contents of the drop down menus lists as well as the general instruction screens used to guide the user through the general database procedures. The results are examined in the next section.

8.8 The evaluation of the final database and recording standards.

The development and testing of the database structure and recording standards was concluded after the two phase trials at STG and JLW. The two firms were again approached following further design and development modifications to participate in the evaluation of the final database complete with recording standards. The evaluation consisted of a set procedure for both firms which consisted of two tutorials, one for recording data and one for retrieving data, designed for completion by individual valuers. The tutorials provided the valuer with a dummy comparable record to record onto the database and a number of specified criteria to use to retrieve specific records. A copy of the tutorials appears in appendix H.

After completing the tutorials the participants were asked to fill in an evaluation questionnaire which recorded their attitudes and opinions relating to the performance of the database system, their reactions to the possible effects of the new system on the valuation activities of the firm and compared the performance of the OCDS to their existing system.

After the completion of the evaluation procedure STG offered to undertake a three month trial of the OCDS to provide further reactions to its performance and further opinion as to

the suitability of the system for a firm of their size. These comments along with the final comments of JLW pertaining to the suitability of the database are described in section 8.8.3

8.8.1 Evaluation results

A case study tutorial method of evaluating the database was considered the most appropriate and effective tool to use within this section of the research because it would ensure uniformity when evaluating the system within the two firms. With the two firms in different locations and of differing sizes, an identical evaluation procedure was essential for both firms in order to allow the comparison of results. The original intention was for three valuers from each firm to separately work through the tutorials and then complete the evaluation questionnaire. The whole evaluation procedure was expected to take around an hour per valuer. Both firms proved reluctant to spare three hours of staff time for a research project but were willing to allow the use of three valuers if all valuers were permitted to work through the database together and then independently complete the questionnaire so reducing the work hours spent by two-thirds. As both evaluation sessions were conducted in an identical manner uniformity was still possible. During the JLW test two other surveyors sat in on the tutorials observing the workings of the OCDS and then participated in the post tutorial discussions. For JLW the surveyors who participated in the evaluation were one partner, one experienced valuer and one junior valuer and for STG the head of the valuation department and two surveyors specialising in office valuations. The evaluation questionnaire was split into 5 sections the results of which are now described in turn. A copy of the evaluation questionnaire appears in appendix Hi.

8.8.1.1 Section 1 - The firm's existing database

This section asked six questions relating to the existing databases of the two firms. STG's Shannon system was described in detail in section 8.3.1. The computerised database systems of both firms are specifically used to record transaction details in conjunction with paper filing systems. When asked to rate how comprehensive the comparable evidence records

contained in the database actually are all STG respondents replied that they are basic while two JLW respondents thought their records reasonable and one basic. These results indicate the substantial scope for the improvement in the way in which comparable systems deal with the recording of transaction details. The question "how hard is it to retrieve transaction details from the database?" prompted the same responses for both firms with two respondents believing it reasonable and one hard. The final question of the section queried respondents in the area of database problems. The major problem experienced by the JLW valuers is that of incomplete records but they also complained of difficulties in recording and retrieving records and a general problem with the system's ease of use. The retrieval of records and incomplete records were the main problems experienced by STG valuers but they also quoted problems of retrieving records by address and a general difficulty in using the system. These are the important areas in which the OCDS must improve on the existing systems, that is providing comprehensive records, allowing easy to use query searches and generally being more user friendly.

8.8.1.2 Section 2 - The new database

Section 2 posed questions that concerned the appearance of the OCDS and its performance in specific areas. The first five questions utilised a five point rating scale from a rating of "Very good" down to a rating of "Very poor". The results are shown in table 8.4.

Table 8.7 OCDS appearance and performance ratings

Question	Response				
	Very Good	Good	Average	Poor	Very poor
How do you rate the appearance of the main menu screen?	3	2	1		
How do you rate the appearance of the main database form screen?	1	4	1		
How do you rate the appearance of the printed database record?	1	5			
How do you rate the overall quality of the instruction screens?	2	2	2		
How do you rate the quality of the recording standards?	2	4			

The responses to the questions of database appearance and those concerning the standards and instruction screens were very encouraging. From 30 possible responses only 4 responses were of ratings of less than "good". The most significant response were those relating to the quality of the recording standards with two valuers rating their quality as "very good" and the other four valuers as "good".

Respondents were next asked to rate the ease with which comparables are recorded. One thought it was "very easy", three "easy" and two "reasonable". All six respondents believed the use of drop down menus "significantly" eased data entry and all respondents thought there were enough drop down menu list items to cover all possible responses "in most cases". The responses were encouraging following the problems encountered when devising

the drop down menu lists for some fields. Two valuers thought that the records contained within the OCDS system were "very comprehensive", three "comprehensive" and one reasonable. This shows that the OCDS significantly improves on existing systems and satisfies an aim of the NVED; providing comprehensive details of comparable records.

The next two questions concerned the comparable query mechanism. One respondent commented that the mechanism was "very easy" to use, three thought it "easy" to use and the other two believed its ease of use "reasonable". The instructions relating to the query mechanism were regarded as "very good" by four of the respondents and "good" by the remaining two. The results suggest that the query mechanism is easy to use but where potential users only have a basic knowledge of windows they may find the queries quite difficult to use at first so it was encouraging that the instructions were regarded so highly.

The overall response to section two was extremely good indicating that the database achieved the aims it set out to achieve which are those of providing comprehensive records, being easy to use, providing high quality recording standards and allowing the effective retrieval of comparable evidence.

8.8.1.3 Section 3 - Possible improvements.

Section 3 provided respondents with the opportunity to comment on any improvements necessary to make the database more efficient and effective. This was an open question but no comments were received by any of the respondents suggesting they could find nothing wrong with the database.

8.8.1.4 Section 4 - A comparison with existing systems

This section used a table to compare the performance of the OCDS with the existing comparable database of each firm. Analysing table 8.5 below certainly identifies beyond any doubt that the OCDS outperformed existing systems and offers substantial improvements.

Table 8.8 A comparison between the OCDS and existing systems

Question	Response				
1. Is recording data	Much easier 2	Easier 1	About the same 2	Harder	Much harder 1
2. Is recording data	Much quicker 2	Quicker 1	About the same 1	Slower 1	Much slower 1
3. Is recorded data	Much more comprehensive 4	More comprehensive 2	About the same	Less comprehensive	Much less comprehensive
4. Is recorded data	Much more accurate 1	More accurate 5	About the same	Less accurate	Much less accurate
5. Is recorded data	Of much greater uniformity 1	Of greater uniformity 5	About the same	Less uniform	Much less uniform
6. Are comparable query searches	Much easier 3	Easier 2	About the same 1	Harder	Much harder
7. Are comparable query searches	Much more comprehensive 4	More comprehensive 2	About the same	Less comprehensive	Much less comprehensive
8. Overall is the new database	Much easier to use 3	Easier to use 3	About the same	Harder to use	Much harder to use
9. Overall is the database	Much better 3	Better 3	About the same	Worse	Much worse

The first question concerned the recording of comparable data into the database, was it easier or more difficult? The results show that generally recording data is easier in the OCDS although one respondent thought it was actually "much harder". This is possibly a comment on the substantial number of fields in the OCDS rather than on the actual methods of data recording. Two respondents thought recording data was slower in the OCDS again this is probably a reflection on the number of fields in the database. Three valuers thought recording data was actually quicker almost certainly due to the use of drop down menus.

All respondents believed that the recorded data were more comprehensive than data contained in the existing systems and four respondents thought the data were "much more comprehensive". This indicates the achievement of one of the main aims of the OCDS. Again all respondents regarded the OCDS data as "more accurate" and of "greater uniformity" than existing systems which may be due in part to the use of standardised drop down menus and the data quality standards.

When comparing the comparable query mechanism between the two systems three valuers thought OCDS searches were "much easier" while two thought they were just "easier". This again fulfils one of the main aims of the system, that of improving the efficiency of comparable data collection. Finally three respondents believed the OCDS "much easier" to use with the other two thinking it "easier" and, after taking all of the database features and characteristics into account, half of the valuers commented that the new system was "much better" and the other half "better".

There were no discernible trends between the responses of the valuers from the two different firms and with so few cases no statistical analysis of the results is either possible or necessary.

8.8.1.5 Section 5 The possible effect of the system

The final section of the questionnaire examined the possible influences of the implementation of the new database. These questions were directly related to the overall

aims of the NVED system explained in section 6.2. If the OCDS system could achieve these aims within two firms then it is probable that the NVED system, if implemented correctly throughout the profession, would have a similar affect. Again the results showed no patterns between the valuers of the different firms and are shown in table 8.6.

The respondents were asked to provide "yes", "no" or "maybe" answers to questions concerning the possible affect of fully implementing the system. Five of the six respondents thought the new system would improve the efficiency of the data collection. From the previous results it is clear that the database would do so by providing more comprehensive records eliminating the need for further consultation with paper files and also improving the quality of query searches making it easier for valuers to retrieve records. The second question concerned whether the OCDS would improve the efficiency of data recording. Four believed it would and two that it might do. Again this favourable response is probably due to the use of features in the database such as the drop down menus and data quality standards not present in existing systems. Thirdly three respondents believed the OCDS would improve the accuracy of recorded comparable data, certainly because of the on-line data recording standards and standardised entries. Five valuers thought the data contained within the system would be of use to other departments and all respondents thought such comprehensive data would certainly aid property research. The final question asked valuers whether the new database would provide the basis for inter-firm co-operation, that is would the improvement of comparable data and the efficiency with which it is recorded and retrieved encourage the creation of a NVED. Three respondents replied "yes" and three "maybe" indicating that it will take more than an effective system to encourage data sharing and pooling and the creation of a NVED.

Table 8.9 The affect of the OCDS system if fully implemented

If the new database was implemented within your firm would it:			
Increase the efficiency of data collection?	Yes **5**	Maybe **1**	No
Increase the efficiency of data recording?	Yes **4**	Maybe **2**	No
Increase the accuracy of data recording?	Yes **3**	Maybe **3**	No
Be of use to other departments?	Yes **5**	Maybe **1**	No
Aid research?	Yes **6**	Maybe	No
Provide a basis for inter firm co-operation?	Yes **3**	Maybe **3**	No

8.8.2 Final reactions

Following the completion of the evaluation questionnaires there was a discussion concerning the merits of the OCDS, its potential application within the firm and the overall NVED concept. Comments were also received from STG after a three month trial of the database and these are included within section 8.8.2.2

8.8.2.1 Jones Lang Wootton

All of the five surveyors that took part in or observed the evaluation agreed that the OCDS was extremely effective and the evaluation results support these views. They believed it was a vast improvement on their existing system and would be supported particularly well in a networked environment, initially in-house possibly expanding, after appropriate technical modifications, to a national network. With the tremendous increase in IT usage within JLW in the last two years the majority of surveyors are computer literate and would experience few problems becoming quickly familiar with the OCDS. Consequently the database could be implemented immediately and work effectively on the JLW internal network.

With the JLW prevailing policy towards data recording compelling valuers to record their data accurately there would be few problems actually persuading surveyors to record data onto the system. The participants were particularly interested in use of Metadata and the methods used to assess accuracy. It was continually emphasised by the participant valuers that valuers will not rely upon data without first checking its accuracy, especially when the data has originated from sources outside the firm. This was perceived as one of the main stumbling blocks to a NVED. Once the first surveyor was sued for negligence after relying on data from a national system no one will subsequently rely on the data contained within the system and consequently no surveyors will consider it worth the effort of recording data onto the system and the system will then quickly collapse. Therefore the legal implications of the data contained in the NVED is an area in need of considerable research prior to the implementation of any national system but it is likely that if payment is received by the data recorder for recording transaction details then the liability for error would lie with that same party.

The JLW surveyors were also concerned about the potential loss of competitive advantage associated with a NVED. They considered it more likely that instead of a national system there would evolve local data sharing agreements between possibly three or four firms of a similar size with equal amounts of data to contribute. Whether such agreements are legal is open to debate but loosing data to smaller firms seemed an unacceptable proposition. Although in favour of the NVED concept, the participants thought it unlikely in the foreseeable future but agreed that the future of valuation data collection would revolve around systems such as the OCDS networked within firms possibly leading to data sharing agreements between firms of a similar size. Whether these closed systems would lead to the creation of a national system was uncertain.

8.8.2.2 Sanderson Townend and Gilbert

The comments received in the discussions following the OCDS evaluation were very encouraging. All participant surveyors said they would certainly use the system as it was a vast improvement on the existing one and so long as all surveyors in the firm actually

used the system to record their comparable data it would prove extremely effective. After the three month trial in which surveyors were asked to use the system to record all their comparable data the results were less encouraging. John Craig , the head of the valuation department, oversaw the trial and commented that surveyors proved reluctant to record data onto the OCDS because, on first impressions, they believed it to be far too complex. Although encouraged to use the system surveyors continued to fill in the existing data forms for data to be input into the existing Shannon database. Paper copies of the main database form were distributed to try and remedy this initial problem and surveyors were asked to write the data on the forms. At first glance the printed form looks daunting and valuers did believe it too complex and that they were being asked to record too much data. Of course providing paper printouts of the database form defeats the object of the database itself. The whole purpose of inputting the data into the computer is that the actual data inputting procedure is quicker, due to tools such as the drop down menus, than manually writing the data and when data are stored in database tables it becomes possible to manipulate these data using the database functions. The overall results of the trial were that the OCDS was too complex for a firm of STG's size where surveyors are less computer literate than those in JLW, other than the three surveyors within STG that tested the system, and cannot be compelled to use the new system. John Craig, the head of STG's valuation department, was still enthusiastic about the system and thought it was the way forward for valuation data recording and collection but it would take a few years to educate existing valuers of the importance of recording and storing data in such a manner. As far as the long term aim of a NVED was concerned he expressed the opinion that competitive advantage would prevent the creation of a national system and smaller firms would not be able to afford the technology to become involved even if it were implemented.

8.8.3 Problems of the evaluation procedure

The procedure used to evaluate the final database suffered from two main problems. Firstly, the tutorial method of evaluation was not flexible enough for the valuers to explore the workings of the database in sufficient detail, however within the constraints of time it was the most viable technique to use. Ideally, valuers would have used the

database unaccompanied and recorded "live" records so they had to read the recording instructions and standards to ensure these worked properly. Instead valuers read the instructions and standards but were able to simply follow the tutorial instructions if they had a problem. Additionally working as a group meant one surveyor controlled the database while the other watched on and made comments. Again resource and time constraints imposed by the two firms prevented the ideal scenario of each valuer working alone through the tutorials.

The second problem revolved around the three month trial at STG. The surveyors at STG had the opportunity of continuing to use their existing system instead of taking time to learn the OCDS. Most were unwilling to spend time on the new system therefore devaluing the trial. Ideally valuers would be compelled to enter data into the new system and an evaluation run after a three month period. However, the evaluation procedure produced valid results and results that permitted the comparison of the OCDS with old systems and the requirements of valuers.

8.9 Summary.

This chapter has examined the development of the OCDS both in terms of the database structure and the creation of the data recording standards. It discussed the problems of existing systems and identified the areas where a new system must improve. The OCDS was developed specifically with the needs of practising valuers in mind. The main survey questionnaire identified these needs which were incorporated into the database structure which gradually evolved during the trials with STG and JLW. Once the trials were complete the final database and standards were evaluated by valuers at the two previously mentioned firms. The results were extremely encouraging and suggested that the OCDS achieved the objectives it set out to achieve. From the subsequent discussions it became clear that the OCDS would be effective in large firms where the computer literacy of staff is good and they are already familiar with the use of quite complex Windows software.

The OCDS s ideally suited to an internal network complemented by a server containing the database software and which allows all valuers access to the database form their computer terminal. In smaller firms where perhaps only one or two computers exist that are capable of running the software and where the computer literacy of staff is relatively low, the OCDS is unlikely to be viable. The effectiveness of the system is also increased where firms have adopted strict policies of data recording and the ability to compel the user of a database system to record data onto the system is a vital ingredient in its success. As far as a NVED is concerned, both firms considered its implementation unlikely in the foreseeable future but did think that the creation of local data sharing agreements were probable utilising an OCDS type structure.

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Chapter 9 Computerised valuation methodologies and the NVED.

9.0 Introduction

Several computer based methodologies exist with specific application to property valuation. These techniques aim to either mimic the thought processes of the valuer or develop models which will produce a valuation figure from a set of objective inputs. The application of such techniques is in its infancy in relation to the property profession but research is beginning to bring the prospect of the widespread use of statistically based valuation aids ever closer.

Multiple regression analysis (MRA) is arguably the most well known computerised, statistically based, valuation tool with an application in the valuation profession. This statistical technique develops an equation which allocates weightings to property characteristics which contribute to the value of a property. The equation can then be used to predict the value of subsequent properties by simply inputting the characteristics of that property into the equation. Case Based Reasoning (CBR) is another computer aided approach with application to the valuation of residential and other property types. This chapter discusses MRA, CBR and other computer based valuation methodologies and their application to the valuation profession. Current data constraints limit not only the work of the professional valuer but also researchers who rely on mass data to calibrate models and develop computer systems. The NVED would revolutionise research into the development of statistical and other valuation methodologies by improving data availability and also providing researchers with standardised and accurate data with which to work. The chapter describes how MRA and CBR operate in relation to property valuation and describes the progress of research into the technique both in the US and UK before progressing to look at the possible influence of the NVED.

9.1 Computerised valuation techniques

Chapter 3 discussed the importance of objectivity in the valuation process and its direct relationship with valuation accuracy with subsequent chapters examining how the NVED would increase this objectivity. 100% objectivity is impossible to achieve because of certain pre-conceived views and opinions a valuer will possess in relation to the property which is the subject of the valuation. These views and opinions of a property's value will influence the selection of comparables with valuers choosing only those comparables that support their opinion of value or perhaps influencing the way in which comparables are analysed with greater weight allocated to supporting comparables in comparison to those comparables that contradict the valuer's view. Although the prudent valuer should enter the valuation of a property with an open mind and analyse the available comparables from an objective view point, scope always exists for the sub-conscious views of the valuer to influence the analysis. In addition to the views of the value influencing the analysis of comparables there also exists further room for error in a valuation figure. Valuer error is possible during complicated analysis either during the numerical analysis of comparables of when executing the mathematical processes inherent in valuation models.

The development of statistical valuation techniques such as multiple regression analysis and other computer based valuation methodologies such as Case Based Reasoning, expert systems and neural networks aims to convert the valuation process from one with substantial subjective inputs to one that is almost completely objective. A computer based process could simply require the valuer to input the characteristics of a property into a model or computer programme which would then produce a valuation figure. These statistical procedures and computer programmes narrow the scope for valuer error and certainly promote a large degree of uniformity into the valuation process.

There has been considerable research into the application of computerised valuation techniques, particularly in the last 15 years, but the origins of this work go as far back as the 1950's (Renshaw 1958). To date research has concentrated on producing

models for the prediction of residential property prices and values (see for example McCluskey and Borst 1997) due to the greater availability of data and homogeneity inherent in that property sector but it is beginning to move in the direction of other property sectors. Models are already in practical use in the USA but their accuracy is yet to be accepted in this country so are not used with any great frequency. The following sections examine statistical valuation techniques and investigate how a NVED system would facilitate the development of accurate models leading to the widespread use of statistical methodology within the valuation process.

Research has investigated the use of artificial intelligence and other computerised techniques in relation to the production of property valuations, usually in relation to residential properties although there are exceptions (O'Roarty et al 1996). The following sections briefly outlines two of these applications.

9.1.1 Expert systems.

Expert systems are defined by the British Computer Society as

> *"the embodiment within a computer of a knowledge based component from an expert's skill in such a form that the machine can offer intelligent advice or take an intelligent decision about a processing function."*

Expert systems consist of a knowledge base elicited from practising valuers which is accessible by the user of the system by answering simple questions relating to the valuation task. Scott and Gronow (1986b) developed an expert system for mortgage valuations using a knowledge base elicited from a building society valuer. The valuer then answers simple questions regarding the characteristics of the property, for example its location, the number of bedrooms or the presence of a garage for example. Research progressed to develop an expert system for valuing semi detached and terraced properties in Cardiff. The prototype was able to value to within +/- 5% of a practising valuer's figures in a limited area on a small number of cases (Jenkins and Gronow 1993). Additional research into expert systems included work by Grant and McTear (1992) who produced a system which undertook comparative valuations for residential property and Edgar (1994) developed a system that selected an appropriate yield to value an income producing investment property as an aid to investment

decision making. An advantage of expert systems is that they do not rely on mass data but on the opinions of an expert instead. This is also one of its drawbacks as they are based on subjective opinions and not objective data and such opinions may vary from expert to expert unless the expert system covers a very narrow domain.

Other criticisms of the technique revolve around the treatment of location so the use of a system is limited to small geographical areas where the influence of location is relatively constant. Another major criticism is that expert systems lack 'common sense' and are capable of making predictions on the basis of incorrect assumptions. For example a valuer may incorrectly enter that a property has 30 bedrooms instead of three but the expert system will accept this entry and provide a valuation regardless. Rule based expert systems simply replicate the methods of the valuer, however inappropriate these methods may be, so cannot be adapted for specific circumstances. The knowledge elicited from the expert contains a significant proportion of subjectivity and if the views of the expert or market conditions change the system fails (Adair et al 1996). However expert systems have been applied to property valuations with some success and research is continuing to grow.

9.1.2 Artificial Neural Networks (ANN's)

ANN's implicitly represent knowledge and apply inductive reasoning to process that knowledge. They are generated using a computer programme which has the ability to learn from past experiences and to use these experiences to model the real world (Tay and Ho 1994). Neural networks consist of a dense array of networks with each network trained in a particular task from past observations. The advantages of using ANN include its speed, low cost and no requirement for time consuming knowledge acquisition.

Property valuation research into ANN's began as recently as 1990 but is rapidly expanding. Lu and Lu (1992) used a neural network to value residential property with the results showing only a small variability between the valuations produced and actual prices. In 1992 a study set out to determine whether it was possible to use neural

networks in Britain to value residential property (Evans et al 1992). The results showed that the average error in the valuation of residential property by an ANN was 11% from the realised sales price of the property which was regarded as satisfactory given the limited data available. Studies have shown that, in comparison with MRA and rule based expert systems, ANNs achieve greater accuracy (McCluskey and Adair 1994; Tay and Ho 1994). However there are problems associated with ANN's. The ANN process is regarded as a 'black box' approach to valuation in that it is unclear exactly what processes are used in arriving at a valuation figure. No explicit workings are reported when producing the final figure making such valuation inappropriate for settling disputes or appeals (Oppenshaw, Cross et al 1990). It is very difficult to achieve consistency in the training of an ANN and Worzala et al (1994) identified that even where identical software models were trained using identical data exact results failed to be replicated. They also concluded that ANN failed to consistently outperform MRA applications. Research is continuing in developing ANN's for residential property and results are showing that such approaches are beginning to consistently outperform other computerised valuation techniques (Lam 1996). Research has also investigated the use of ANN for forecasting and ERP valuations (Connellan and James 1996) concluding that it is possible to find underlying patterns in historical capital valuations and model these patterns using a neural network to provide forecasts of reasonable accuracy useful for assessing ERP.

9.2 Case-based reasoning (CBR)

The development of CBR is widely attributed to the work of Roger Schank (Schank and Riesbeck 1989) and uses past experiences to solve current problems. This is identical to the way the valuer uses comparable evidence to determine the value of a subject property. The valuer relies on past cases, past experience, to solve a current problem and CBR provides the ability to retrieve and manipulate past problem solving examples accurately (Barletta 1991). CBR works by searching its memory, which consists of past cases, to identify and retrieve cases which match the input specifications of the user. A case is a list of features that lead to a particular outcome, for example a number of characteristics which interact to produce the price of a

property. The greater the number of cases that exist in the systems memory then the greater the chance a match may be found for the input solution and the system will deliver a direct solution. For example a valuer may input the characteristics of a specific property and the CBR system would attempt to identify a case that exactly matched the input characteristics. If an exact match were found that case would be retrieved and its price used as the value of the subject property. Of course no two properties are identical so close matches have to suffice and adaptations subsequently made.

The main tasks involved in developing a CBR system is deciding which features to include in a case. This is obviously vital for a property based system as omitting features which substantially influence property price will reduce the performance of the system. It is the task of the indexing procedure within a CBR system to retrieve suitable cases in certain situations. For example nearest neighbour indexing retrieves the cases that match most closely the input problem. For example if one case matched five of the six case features it would be retrieved in preference to a case that only matched four. Important features may be given appropriate weightings which will influence case retrieval. For example in a property system location may be heavily weighted so the system will retrieve a case more comparable in location rather than a case that has a higher number of matching features but its location is a poor comparison. Alternatively a more complex indexing procedure utilises an inductive approach if there are sufficient cases to allow inductive comparison (Barletta 1991).

CBR systems for property valuation are limited but work has been undertaken at the University of Ulster to develop a system for the determination of retail rents (O'Roarty et al 1996). The case library consists of retail rents and the features that determine these rents such as location, size, frontage depth for example. The system uses a near neighbour approach for the basis of case retrieval and retrieves cases, comparables, that closely match the features of the subject property. Each property characteristic is assigned a value from the case library and these characteristics are arranged in fields with these fields allocated weightings. The more important characteristics are assigned the highest weightings and therefore determine which cases are actually retrieved. The

CBR system is indexed in such a way that cluster trees are developed which build a hierarchical structure for the case library to provide the basis for the inductive selection of data.

As stated by Barletta (1991), the larger the case library then the more likely the CBR system is to retrieve cases that solve the input problem, in the case of property valuation find closely comparable properties. CBR relies to a large extent on the availability of data which is the case for the majority of statistical valuation techniques and the traditional valuation methodologies. Such a large data-set is necessary to increase the chances of the system finding a group of cases which will solve the valuation problem. If only a few cases exist then it is unlikely that appropriate cases exist and existing cases would have to be considerably altered, CBR adaptation, which increases scope for error. Where the data-set is sufficiently large CBR can effectively retrieve the most appropriate cases (O'Roarty et al 1996). The CBR system may then undertake case adaptation to alter retrieved cases to solve the input problem, that is alter the price or rent of the cases to match the subject's property features. This mirrors the manual process of the valuer who will reconcile prices of comparable properties to determine the value of the subject property. CBR may either automatically adapt records or simply retrieve cases for the valuer to adapt manually in which case the CBR system is closer in nature to a database system than a valuation methodology.

A NVED obviously has significant implications for CBR research and the development of accurate valuation systems. The quantities of data will allow the construction of a considerable case library necessary for an efficient and accurate system and the use of inductive case indexing. The nature of the data storage permitting the isolation each property feature will aid the allocation of weightings and the adaptation of cases. CBR automates the comparable selection method and provides the valuer with an "expert" comparable selection tool. Thus CBR has great potential as an 'Add in' to the NVED.

9.3 Multiple regression analysis (MRA)

MRA is a commonly used statistical technique designed to explain the relationship between a dependent variable and a set of independent variables which together produce a value for the dependent variable. The relationship is explained in the form of an equation which can then be used to predict a range of values for the dependent variable given a set of known values for the independent variables.

In relation to property valuation, MRA constructs a model which best predicts the relationship between a collection of property characteristics such as size, location, accommodation and services among others and their market value (Gallimore and Ward 1992, Adair and McGreal 1987). The intention is to produce the model or equation which explains this relationship and hence make possible predictions of the dependent variable (property value) in cases where this is unknown (Gallimore, Fletcher and Carter 1996). MRA has considerable potential for property valuations as:

> *"The basis of MRA is clearly associated with the process of valuation in that it involves the prediction of one variable (price) from data derived from other variables (the factors which influence value)."* (Gallimore, Fletcher and Carter 1996, p6)

To produce an accurate MRA equation which will accurately predict price considerable research is necessary. In order to derive this equation it is necessary to obtain past data relating to realised prices and property characteristics consequently MRA relies on mass data to calibrate the equation and the calculation power of a computer (Scott and Gronow 1986). MRA statistically measures the relative influence of several value characteristics and explains how a value or price is dependent upon these characteristics (Adair and McGreal 1987). In order to assess the impact of each characteristic upon value it is necessary to gather a large number of past sales to actually identify the individual influence of each independent variable or property characteristic. This is known as calibrating the model where each individual variable is allocated a weighting which reflects the relative influence on value of each independent variable.

A simple example of a MRA model for the prediction of residential property values was illustrated by Gallimore and Ward 1992. They described a MRA model as essentially "an equation used to predict the value of a property from prior observed sales prices" which is a procedure which exactly mirrors the comparable evidence method of deriving property values only with a sound statistical base. In their example Gallimore and Ward assumed that there were only three factors that determined the price of a house: its size, the presence or absence of a garage and the presence or absence of central heating. Their MRA model to reflect this read:

Market Value = (House size(price) + Price/sqft of house + Price of Cent/heat + Price of garage)

As previously mentioned calibrating the model involves the analysis of past transactions to allocate a price to each element of the equation. If the dependent variable is known as are the prices of two of the three independent variables it is possible to isolate the price of the third variable. Alternatively using a vast number of actual prices the model is able to provide a price for each independent variable to best fir the actual known price. The calibrated equation then only requires the valuer to input the data on size, garages and central heating and the model will determine the value of the subject property. The additive MRA model, like the example shown above, is the simplest example but fails to take into account the influence of a single variable over the other variables. A multiplicative model attempts to achieve this by using exponential coefficients to vary the influence of certain characteristics over certain independent variables. The more complicated and comprehensive the model with increasing numbers of independent variables then the greater the possibility of valuing properties that contain more complex value characteristics such as office properties.

Other forms of MRA apart from the generalised additive model include stepwise regression, backward stepwise regression, the generalised linear interactive model, partial least regression, ridge regression and robust regression (Lam 1996). All the MRA techniques are based on the same general principles but modifications have been

made within each variant to overcome some of the problems inherent in the valuation of property using this statistical technique.

The necessity for large quantities of data is one of the major problems of MRA and "historically the valuer in the UK has lacked access to databases". (Adair and McGreal 1987) Traditionally, for MRA models, around 30 items of data are necessary to calibrate the equation but Skenkel (1978) argues that 100 comparables with reliable data on size, location, physical and neighbourhood characteristics are necessary for a property specific MRA within a definable geographical area. Without large databases of past transactions providing such quantities of data it is impossible to calibrate the model correctly and accurately and this is the major reason why the UK valuation profession has failed to incorporate MRA into valuation analysis. Not only is the lack of adequate data a problem but so is the form in which these data are required for analysis.

> "*One of the major problems in the investigation of the use of MRA is the availability of data. This problem arises in part because of the need for data to be specified and measured in a quantitative form.*" (Gallimore, Fletcher and Carter 1996, p8)

The NVED would not only provide the necessary amount of data for model calibration but also provide data in a uniform manner allowing the simple quantification of value factors. The use of GIS technology in the assessment of locational influences on value (Wyatt 1996) and the advances in location surface analysis (Gallimore, Fletcher and Carter 1996) makes possible the development of MRA models which are a significant improvement on those currently available by permitting the quantification of location, which is currently dealt with by producing models for homogenous areas. Individual models for numerous locations destroys the uniformity of approach considered to be one of the main advantages in valuation by MRA techniques. The use of the NVED in MRA research is described in detail in section 9.5.

The potential for the future use of MRA models looks encouraging given the development of the technology in recent years in the USA and UK. These

developments are described in the next section followed by the advantages and disadvantages of MRA valuation models.

9.3.1 Developments in MRA

40 years ago Renshaw (1958) demonstrated a relationship between the value of agricultural land and four independent variables through the use of MRA techniques. This relationship and the resulting MRA equation was adopted in the USA by Pendleton (Pendleton 1965) who adapted the relationship to predict the open market value of residential property. Pendleton developed a statistical model which predicted the average sales prices of a sample of houses to within error limits of +/- 6-7%, a result that has rarely been bettered. He believed it possible to identify a group of independent variables that accounted for 90% of the variation in the selling prices of residential property. Work continued during the 1960's and 70's refining the work of Pendleton and making predictions using MRA. Studies continually emphasised the practical application of MRA in relation to residential property valuation. MRA was also widely used for taxation purposes with its objectivity, and cost, proving ideal for such mass appraisal. Hinshaw (1969) was the first to use past sales of comparable properties to calibrate the MRA model and improve the accuracy of predictions.

King and Cane (1971) explained how the Society of Real Estate Appraisers in California used a computer data bank containing details of a large number of property characteristics to build a MRA model which again was used to predict the selling prices of residential property. Independent variables were divided into building characteristics, site characteristics, location characteristics and transaction characteristics. Various techniques and combinations of variables were used to produce the most accurate MRA equation. The best results were obtained for semi-detached properties where the estimated sales prices were +/- 10% of the actual selling prices for 98% of cases.

Valuers criticised these statistical techniques for a number of reasons (Adair and McGreal 1987). Firstly they believed MRA under-estimated the subjective element of

the comparable method of valuation, there was no room for the opinion of the valuer considered vital as price can vary so considerably between relatively similar properties for often unquantifiable reasons. Many valuers did not understand the mathematics of the techniques used and were unwilling to move from a simple process to an equation utilising complicated mathematical relationships. Thirdly, most valuers did not have access to the large amounts of data necessary for MRA and finally, the technology required to process the data and calibrate the MRA equation, that is a powerful computer, did not widely exist. Due to the large numbers of characteristics influencing property value and the number of comparable properties necessary for accurate comparable analysis it is very difficult to successfully account for all these factors without errors due to omissions and bias so MRA is a significant aid in reducing such error. (Adair and McGreal 1987)

The 1980's saw an increase in the quantity of research in the UK devoted to MRA applications in property valuation. Baum (1982), Boyle (1984) and Greaves (1985) all outlined the application of MRA to the valuation of residential property but the lack of available databases has prevented research on a larger scale or into other property types which may have produced results of more significance to the profession. It is only in the public sector in the Valuation Office Agency where sufficient data exists, but these data are confidential, and it is here where practical use is being made of MRA techniques.

Adair and McGreal (1987) published a study which investigated the valuation of residential property in Northern Ireland using data provided by numerous estate agents. The estate agent provided sales data which included details of properties' sales price, address, type, age, floor area, number of bedrooms and reception rooms, presence of a bathroom, central heating and garage and whether repair or modernisation were necessary. Previous US studies indicated that MRA was only effective when applied at limited spatial levels so ignoring separate measures of location. Consequently models were produced at various spatial levels ranging from the regional level to the individual street level, partly to test this contention. Analysis concentrated on developing the equation based upon 1,095 terraced houses.

In MRA analysis the level of statistical explanation is expressed as a percentage by the R^2 statistic where the higher the percentage the greater the level of explanation of the relationship between the dependent and independent variables. The R^2 figure ranged from 0.511 for the regional level up to 0.911 at the street level. These results suggest that the narrower the geographical scale the greater the predictory powers of the MRA model which in turn reflects the major influence that location exerts on property value. The results again concord with the US studies which suggested that MRA was only accurate for a set of homogenous properties at a narrowly defined spatial level, therefore of limited use.

Adair and McGreal's 1987 study highlighted that it was possible to produce accurate MRA models where properties are similar and where the spatial level is such that it negates the influence of location on individual properties. Both Adair and McGreal (1987) and Boyle (1984), who obtained similar results in Birmingham but using data from newspapers and asking prices from estate agents' windows, suggested that MRA, if fully developed and refined, has an application in the UK but academics must be allowed access to much larger databases such as those held by the Valuation Office Agency to develop and calibrate models if the full potential of MRA is to be realised.

Dodgson and Topham (1990) undertook a study to determine whether computerised statistical techniques available at the time were able to provide valuations which were comparable to those of professional valuers in terms of accuracy. The study concluded that the average difference between the professional and regression based valuations was 15%. This is a significantly wide margin which casts doubts over the applicability of statistical techniques if the valuations produced by the professional valuers are taken to be accurate. An error margin of 15% is far greater than the acceptable margin of error defined during this research by valuers which was set at 10% from the actual selling price or rental value of a property. Dodgson and Topham concluded that regression could be used to value particular types of property but again only in homogenous areas.

Research up to the middle 1990's has concentrated on producing MRA models for residential property which include no separate measures to take into account the considerable influence of location. Research has concentrated on producing models for residential property for a number of reasons. Firstly, data is more readily available, confidentially clauses tend not to exist and the number of actual transactions is far greater when compared to other property sectors. Secondly, there are fewer value factors inherent in residential property as opposed to office or industrial property which have numerous factors which exert a considerable influence on value. Calibrating the model is considerably easier where fewer independent variables exist as the more independent variables that exist that the greater amounts of data that are necessary to calibrate the model and as already mentioned these quantities of data do not exist. Finally, residential properties are located in narrow spatial regions such as individual streets or crescents making it easier to ignore the influence of location which can clearly not be done over a wide geographical range. Ignoring location considerably reduces the applicability of MRA. This is because a separate model is necessary for each street to achieve high R^2 values and this eliminates major advantages of MRA, those of time and cost savings and wide scale objectivity. Therefore it is necessary to incorporate a measure of location into the MRA equation to expand the area within which a specific model is applicable. This is what Gallimore et al (1996) attempted to do.

Gallimore et al (1996) reported a study analysing 218 residential properties in Stafford using actual sales prices to calibrate an MRA equation. The study also importantly included a quantitative measure for location in the final model calibration. Location was measured by splitting the analysis area into neighbourhoods which were each analysed individually and a model for the influence of location in each neighbourhood produced by using 3D surface modelling using GIS technology. The relative effect of the location model within the neighbourhood was then applied to each individual property through a percentage adjustment in the final MRA model. The initial equation without location measures was constructed using actual sales prices and information on address, date, property type, age, size, number of storeys, number of bathrooms, number of garages, type of central heating and condition. Variables were

classified as either reasonable or good or by using 1 to indicate their presence and 0 their absence. This original model achieved a coefficient of determination (R^2) of 0.88 with a standard error of £9,340. When the 3D surface model, which took into account errors between the MRA model and actual prices due to location, was incorporated into the MRA equation R^2 increased to 0.98 with the standard error now £4,350.

The results show a large increase in R^2 with the measure of location added to the model. With 98% of the price determined by the property characteristics employed in the model and location accurate predictions can be expected from the model and certainly the model approaches levels of predictability which merit further exploration. With improvements in GIS technology and hopefully continued improvements in the availability of data the research into developing models which include a quantitative measure of location will be the future of statistical valuation methodology. With location such an important part of the value of an office property then the work of Gallimore et al (1996) and all the other research into MRA for property valuation may encourage research into developing equations for other property types if increases in data availability materialise. This would provide the valuer with a sorely needed objective aid to the valuation process.

9.3.2 Problems associated with MRA.

The only extensive use of MRA in England and Wales is by the Valuation Office Agency and this is mainly because it is the only organisation with access to sufficient quantities of data for accurate model calibration. Statistical techniques are used as an aid by the VOA to re-value properties to produce valuations for a new rating list. Elsewhere, particularly in private practice, the lack of available data has hindered MRA research and consequently the use of statistical techniques in day to day valuations.

The greater the availability of data the easier it is to isolate individual value factors and allocate each factor an accurate weighting in the final equation. Confidentiality clauses prevent data release even for research purposes in the commercial property sector preventing substantial research into MRA applications for commercial property

sectors. In the US greater data availability has permitted the development of MRA techniques for mass appraisal which are especially useful for taxation valuations because of the uniformity and hence the equity of assessment.

Until the study published by Gallimore, Fletcher and Carter (1996) the only method used to account for the influence of location was to ignore it by producing models for properties in homogenous areas where the location has an identical influence on each property, at the street level for example. This is shown by the high R^2 results achieved for MRA models at the individual street level when compared to models at the regional or city level (Adair and McGreal 1987). If an equation were necessary for each street this would render obsolete the advantages of time and cost savings and, to a certain extent, that of uniformity of approach. Location, with relation to retail and office properties, is an even greater obstacle for MRA. It may have a substantially different influence on two properties at different ends of a street due to changes in accessibility or transport links, for example it may be an extra 100 yards from the nearest underground station which will influence the rent payable on retail premises and to a certain extent on some office properties. Equations at the street level will not work for properties other than those in the residential property sector. A measure of location is necessary for each individual property in the regression equation which may be incorporated subjectively by the valuer by adjusting the MRA valuation figure for the influence of location or by the incorporation of some statistical measure. Wyatt (1996) used a GIS and an accessibility index to quantify the effect of location on the value of residential properties which could be modified and incorporated into the model if the influence on value were calculated for each property, stored on a database then retrieved and incorporated when necessary. Alternatively the 3D modelling used by Gallimore et al (1996) could be stored on computer and the appropriate measure for each individual property retrieved when necessary. Whatever the case it is vital that an explicit measure of location is present in any MRA model to establish some degree of accuracy in the model.

Statistically MRA suffers from several major problems. It assumes a linear relationship between the independent and dependent variables which simplifies the workings of the

property market to too great an extent and is considered by some as too inflexible and simple for the complex interaction between property characteristics and price (Scott and Gronow 1986, Donnelly 1989). The value allocated to each characteristic is very much dependent upon the views of the individual purchaser as one purchaser may regard the influence of one property characteristic more highly than another. These different views may result in a similar final selling price but allocating a set value to the influence of each characteristic MRA equation does not reflect the reality of the situation.

The data used to calibrate the MRA model also need to be recorded in a specific format for analysis or they require lengthy conversion. These data must be normally distributed and on a continuous scale of measurement which contradicts the text entry methods traditionally used to record property data in a simple database. The NVED overcomes this problem to a certain extent (see section 9.5).

The concept of multicollinearity is a major statistical problem associated with multiple regression analysis. Indeed Boyle (1994) went as afar as to say that the results of MRA are "suspect" due to this problem. Multicollinearity describes the combined influence of a number of independent variables on the value of the dependent variable where the influence of each individual variable is difficult to isolate (Adair and McGreal 1987). One variable may influence the effect of another variable so the more variables that are added the greater the possibility of further multicollinearity. This is because the greater the number of variables the greater the number of combined influences and relationships that exist. Many items that are related in their affect are usually found together, for example size and number of garages. It is therefore very difficult to isolate the individual effect of each factor as the other factor also exists therefore multicollinearity leads to individual factors being allocated incorrect weightings. Where these related factors are found separately in a subject property the equation assumes the combined effect so the results are often misleading. To reduce the influence of multicollinearity, regression models are limited to a few key variables which explain the majority of the independent-dependent variable relationship but tends to affect the explanatory nature of the equation. The only way to overcome

multicollinearity it to obtain sufficient quantities of data to enable the isolation of each property characteristic and the allocation to each independent variable a weighting which is, as the name suggests, independent of the influence of the other variables.

Multiplicative models attempt to overcome multicollinearity by transforming data to attempt to model the influence of one variable over a number of variables. Stepwise regression techniques such as that used by Adair (1991) reduce the total set of potential variables to more manageable levels by removing those with high levels of collinearity but this may result in biased coefficients. These procedures are considered to alleviate the problem of multicollinearity by distinguishing between variables which make a significant contribution to prediction and those that do not. Data are removed due to their collinearity (R^2 scores) and not their theoretical influence which may logically mean they must be included in the equation.

The most successful MRA results in terms of accuracy occur for residential properties in homogenous areas where price predictions have varied from the actual sales price by 6-7% (Pendleton 1969). For commercial property valuations it will be very difficult to approach accuracy levels anywhere near to those of professional valuers, even though these are far from perfect, due to the large numbers of variables and countless unusual circumstances that prevail in may transactions. However it may still be advantageous to develop models for mass appraisal where uniformity of approach and cost are the primary objectives. MRA is unlikely to be anything other than an aid to the valuer due to the problems explained above but it is possible that accurate MRA models will, by isolating the influence of individual value characteristics, help the valuer understand the way a property price constitutes the interaction of various characteristics and which of these characteristics are the most influential.

The NVED will provide substantial quantities of data recorded in a format easily adapted for MRA analysis (see next section) which will allow the development of relatively accurate models which, when combined with the new methods of quantifying location, may aid the valuer in quantifying differences between a subject property and a

comparable property by identifying the individual value influences of certain property characteristics.

9.4 The application of the NVED to MRA and CBR research and valuation.

The primary application of the NVED to MRA and is the large quantity of standardised data that would be made available. If all transactions were truly available then over a period of time, and preferably if VOA databases were made available too, researchers would have available an unprecedented array of uniform data upon which to base and calibrate MRA models and build case libraries. Such increases in data must only lead to more accurate statistical models and the more objective production of valuations for property.

When calibrating MRA models sufficient data is necessary to isolate the individual property characteristics in order to examine their influence on the final property value. Limited data makes it extremely difficult to successfully isolate each characteristic and this is one of the reasons MRA models have not been applied with any success to any property type other than residential. In relation to office property and developing models for this specific property type, research has been sorely limited due to the vast number of property influencing characteristics and the huge amounts of data necessary to even begin to calibrate any model. With a fully implemented NVED there would eventually be sufficient quantities of data to make possible the calibration of MRA models and the development of substantial case libraries.

The nature of data storage and the opportunities for data manipulation presented by the NVED software developed during this research promotes the future possibilities of office valuation research. Firstly a searchable database of transaction evidence details makes it possible to not only isolate particular locations and specific transaction types but also individual property sub types such as converted town houses and then isolate certain characteristics of the property group to calibrate a final model. With such a wide variety of property sub types within the office market it is not possible to produce a single all encompassing MRA equation for commercial property. It can only be

practical to produce a number of models applicable to property sub types or some other similar categorisation and then incorporate a separate measure for location at the individual property, or more likely street, level. This will almost certainly involve GIS technology producing value maps to isolate the locational influence on value for specific areas or individual properties based upon the research begun by Gallimore et al (1996) and Wyatt (1996).

The NVED software basis developed during this research standardises many entries. Such standardisation not only makes the job of the researcher far easier in the respect that less time is necessary converting obtained data but also opens up possibilities of assigning each entry specific weightings as is the case currently with MRA data. For example the presence of a lift may be allocated a 1 and the non presence a 0. In a similar vain a number of possible entries may be allocated a label depending upon their actual influence on value. This weighted entry would then be incorporated directly into the statistical model allowing actual valuations from a database form. For example, there are two possible entries for the upward only rent review field. Either yes the rent review clause of the lease specifies upward only rent reviews only or no it does not. For a model predicting the open market rental value of a property, the selection of either of the entries will influence the final rental value of the property. A rent review pattern with upwards and downward reviews possible will attract a higher rental value than one without as tenants are willing to pay for the possibility of a reduction of rent at review, the amount will depend on the prevailing market conditions. Assigning a weighting to the yes and no entry will input the relative influence of each entry into a final statistical model. The allocation of such weightings could be done by isolating each characteristic and deriving its weighting which would obviously necessitate large quantities of data or experts could assign values through knowledge elicitation, although this adds subjectivity to the process.

For valuation purposes it would be possible to value property using the NVED database. Selecting a MRA model for a particular property sub-type and inputting a derived measure for location would be the starting point. Selecting an entry for each individual property characteristic would assign a weighting to the MRA model and

once all entries to the model are complete the valuer could, theoretically, click on a button to run the MRA model and produce a valuation figure. This would provide a valuable aid to the valuer in the valuation of all types of property.

Whatever the final technical procedure, which requires considerable additional research beyond the scope of this thesis, there is significant potential for the application of the NVED to MRA research. Future work is necessary to produce effective measures for location to allow the production of MRA models for application to particular property types rather than those currently limited to small homogenous areas for residential property. It is also necessary to derive a methodology for calculating weightings for each input and an appropriate MRA model type, such as stepwise regression, that will overcome the traditional shortcomings of statistical valuation techniques.

It may be the case that the NVED will have a greater application to case based reasoning. It would provide a case library of unprecedented size allowing the CBR system to select comparables from the database that will provide the valuer with a substantial analysis base. The valuer could enter the features of the subject property into a interface similar to the database form developed during this research. The features could then be submitted to the CBR system with appropriate weightings allocated to those features with the greatest influence on value such as size, lease terms for example. The case library, which may be the whole NVED database, would then retrieve the most similar past case(s) followed by case adaptation to solve the input problem which would be the characteristics of the subject property and the type of valuation required, ERP, OMV for example, by adjusting the comparables. Alternatively, instead of case adaptation the CBR system could simply retrieve the most similar comparables which would provide valuers with their objective analysis base which itself was objectively derived using the computerised technique. A specific quantification of location will be necessary within CBR case adaptation to explicitly account for the influence of this variable.

9.5 Research, the NVED and historical data.

The NVED will contain large quantities of historic data so there exists scope to utilise this data in to determine the change in property prices over specific time periods. Numerous variables influence the price of a property and these vary with time. Such variables include levels of supply and demand in the national and local property markets, macroeconomics variables such as interest rates and inflation for example. Such changes will vary within particular property types and particular time periods. With sufficient quantities of data it will be possible to identify the percentage change in property prices for each property type and sub property type and from the date of transaction for a specific property and the current date. With a percentage adjustment figure identifiable for a specific transaction it will then be possible to use this data for current comparable purposes as the price would have been adjusted to reflect current market conditions. Such adjustments could easily be incorporated into CBR and MRA models without manual adjustments necessary from the valuer. This technique will further increase the availability of objective comparable evidence and will aid valuers where insufficient up to date comparable evidence exists.

Historical data is currently used by various research bodies to produce trends and statistics but each separate body relies on their own in-house data to produce such statistics which often indicate conflicting results due to definition variabilities and the limited data on which to base analysis (Erdman Lewis 1994). With limited data available it is impossible to be totally certain of the accuracy of these statistics and even those produced by large data holders such as Investment Property Databank cannot be viewed as 100% accurate. With increases in data availability there will exist the levels of historical data on which to base considerably more comprehensive analysis. Such data will be available to all so it seems pointless for numerous research bodies to produce identical information paving the way for the creation of a body which concentrates on utilising the data to undertake comprehensive analysis for the benefit of the whole property profession.

9.6 Summary

The main objective of the NVED is to provide the valuer with increased amount of objective data on which to base traditional valuation techniques so improving valuation accuracy. It is clear though that the NVED also has great potential to aid valuation research, firstly because of the large amounts of data it would make available to the researcher and, secondly the standardised nature of the data contained within the database. However at this time studies into the accuracy of computerised valuation techniques reported during this chapter suggest that these techniques do not out perform valuations produced by practising valuers and are unlikely to do so in the near future. Their main advantages are firmly in the area of taxation where uniformity of approach and equity of assessment is essential.

Statistical valuation methodology is a constantly growing area of valuation research as is clearly shown by the body of literature on the subject published in recent years but is hindered by the lack of available data. Such research will continue to grow with improvements in computer technology and software development. Increases in data availability will also contribute substantially to this growth in research and the development of techniques that may be used as an every day aid to the valuer. The NVED would provide not only increased amounts of data so important for research in the areas of MRA and CBR but also standardised data which offers the researcher substantial savings in time and also improvements in the accuracy of the data available. The development and implementation of a NVED will improve the accuracy of statistical valuation methodology as well as aiding the comparison method of valuation. It will have a real impact on both valuers and researchers working in practice and those conducting research in academic institutions.

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Chapter 10 Recommendations for further work and conclusions.

This chapter outlines recommendations for further work identified during the research followed by final conclusions.

10.1 Recommendations for further work.

This section outlines further research possibilities stemming from this thesis and which would make a valuable contribution both to knowledge and the surveying profession as a whole. It also makes suggestions concerning areas relating solely to a NVED which are necessary to make the system a viable proposition.

10.1.1 A repeat of the NVED questionnaire survey.

The survey carried out by Adair et al (1997) identified that there have been significant positive shifts in attitudes relating to data release and pooling throughout the surveying profession. However direct comparisons between this survey and the NVED survey are problematic so making it difficult to establish with certainty the scope of change in the last 18 months. Therefore a repeat of the NVED survey using the same questionnaire and the same sample would clarify any attitude changes relating to data release and pooling and the concept of a NVED following longitudinal analysis. This would also update knowledge on data availability and the methods used to record data including an examination of the extent to which computer usage has increased. Such a repeat of the questionnaire, which after all is one reason for the structured design of quantitative questionnaires, would provide a clear indication of the potential for NVED implementation and a possible time scale.

10.1.2 The attitudes of clients.

A survey examining the attitudes of clients towards data release, data pooling and confidentiality would clarify the position of clients in terms of support or resistance

towards a NVED. Are clients really as concerned with valuation accuracy as the profession suggests?

10.1.3 An expansion of the NVED.

This research concentrated on producing an overall database structure for a NVED but more specifically a data structure for the office property sector within the NVED. Work could now progress to produce a comprehensive data structure and set of recording standards within the NVED for alternative property data types such as retail, industrial and mixed use among others. This would provide a further indication of the potential use of such a system throughout the valuation profession. Creating such a comprehensive database and standards is a substantial task and it may be advisable to pilot the office section of the NVED before proceeding as it could turn out to be fruitless if data sharing agreements do not occur and prosper.

10.1.4 An extended NVED pilot scheme.

To illustrate the potential for data sharing and pooling and, in particular, the benefits of on-line access to comprehensive valuation evidence, an extension of this research, including a pilot scheme, is necessary. This scheme should utilise a uniform database structure and set of standards such as those produced during this research. This pilot scheme could operate between firms within a particular property sector, for example the office property market of Newcastle. It would take only a small number of firms, initially perhaps only two, to agree to develop an intranet linking the computers, or even a single computer, in each firm which holds the software and onto which are recorded all transaction details. Creating such a LVED should illustrate the benefits or otherwise of data sharing agreements and increased access to valuation data. The benefits, if substantial, may then be used to promote expanded schemes throughout the country and eventually a combination of schemes to form the NVED. Taking the pilot scheme a step further could involve integration with pilot work currently in operation for the NLIS in Bristol. Combining a LVED with the NLIS to provide comprehensive on-line access to property related data could investigate the commercial potential and

analyse the influence such data access has on the efficiency and accuracy of the valuation process.

10.1.5 NVED issues.

Recommendations were made throughout the thesis relating to areas in need of further research before any NVED system could be fully implemented. These areas include an examination of possible pricing mechanisms and revenue distribution procedures, the legal liability for the inaccurate recording of data and a further investigation to clarify data protection and copyright issues. Suggestions and likely outcomes were made during the thesis but each issue is an area in need of substantial research.

10.1.6 Specific measures of location.

Considerable work into the quantification of the influence of location on specific property values has recently been reported in the property press. The work by Wyatt(1996), Gallimore and Fletcher (1996) and McCluskey et al (1997) has highlighted the possibilities of quantifying the influence of location and integrating this quantification into valuation models. Such quantification not only makes the analysis of location less subjective but improves the predictory powers of statistical valuation models. Such research is vital to improve valuation accuracy as location has such a significant influence on property values. Further work is necessary to refine and develop this research and large quantities of transaction data from the NVED will significantly aid this research. Once suitable techniques exist they may be applied to the individual property level and incorporated into every valuation using both traditional and statistical valuation techniques. A measure of location as a data field in the NVED would substantially improve the objectivity of valuations and lead to a reduction of valuation error.

10.1.7 Computerised valuation techniques.

As described in chapter 9 the NVED structure and the standardised data it contains has considerable application to research into developing valuation methodologies such as MRA and CBR. As it stands the NVED structure could be used to standardise transaction data for MRA analysis or to build case base libraries for CBR techniques. Once the system is operational and contains transaction data it may then be used to calibrate models on a larger scale.

10.1.8 Data definitions and standards.

The RICS needs to undertake considerable work in relation to data definitions and data standards in order to promote the uniform production of valuations. For all property sectors research needs to identify what factors influence the value of a property, list those factors and provide detailed definitions for use by valuers in the same way they use the RICS Code of Measurement Practice. A step forward has been taken by the database and standards developed during this thesis.

10.2 Hypotheses and research objectives

This section explicitly describes the results of the hypothesis testing and therefore whether this research has or has not met its objectives.

10.2.1 Sub hypotheses i-iii

The first of the three hypotheses was tested during pilot interviews and then with the results of the main survey questionnaire. Initial interviews and the question "Is there sufficient valuation evidence to produce an accurate valuation?" were adequate for this test. Initial interviews identified that valuation accuracy was suffering due to a lack of valuation data, particularly in flat markets and this was confirmed with the results of the survey question. These results are illustrated in figure 4.7 where only 10% of respondents were convinced that there was always sufficient evidence available in a buoyant market, a figure which dropped to 5% in a flat market. This descriptive

evidence means it is not possible to reject sub hypothesis i - *There is insufficient evidence available to produce accurate valuations.*

Sub hypothesis ii was tested directly with a question in the main survey. 63% of valuers were in favour of valuation data release and pooling, a figure which did not depend on the location or firm type of the respondent. With 63% in favour and support expressed for the concept during initial interviews it is again not possible to reject sub hypothesis ii - *Valuers within private sector professional property service providers are in favour of releasing and pooling valuation data* - although for data release and pooling to occur in the near future support for the concept needs to substantially improve.

Sub hypothesis iii was also tested during initial interviews and within the main survey research. At the end of the questionnaire valuers were asked to decide whether the thought a NVED would improve the valuation process. 78% replied that it would. This suggests that, if valuers want to improve the valuation process then they are in favour of a NVED. The case studies also identified that valuers were in favour of the concept even if they did not believe that it was actually feasible in the foreseeable future due to those barriers described in chapter 5. Even though there are problems with the concept it is not possible to reject the hypothesis - *The valuation profession is in favour of the concept of a National Valuation Evidence Database.*

10.2.2 Sub hypotheses iv-vi

Three sub hypotheses were designed to test the storage and retrieval of valuation evidence. *It is possible to accurately and comprehensively record property transaction data using electronic means and data quality standards*, sub hypothesis iv, was tested by examining whether it was actually viable to design a computerised database that could accurately and comprehensively record transaction details for comparable purposes. Firstly existing database were examined to identify whether basic computerised recording were possible and from this gaps in recording knowledge identified. The main questionnaire survey, interviews with practising valuers and an

examination of leases identified what data were necessary to record a comprehensive record. Database technology was then used to assemble these data items into a format which, when coupled with the data recording standards, again developed from data gathered from interviews and the main questionnaire, would provide a comprehensive and easy to use system. The system was evaluated using practising valuers to test whether it met its objectives of recording data accurately and comprehensively in an easy to use format. The results of the evaluation studies are described in section 8.8 but to summarise, valuers believed that transaction data was recorded in an accurate and comprehensive manner therefore sub hypothesis iv cannot be rejected.

The second sub hypotheses examined existing comparable data recording techniques through the use of a small postal questionnaire survey and personal contact with firms that used computerised systems. Only 51% of firms actually used a computerised system so there exists substantial scope for improving the efficiency of data recording, although that figure will have increased in the last two years. Two case studies were used to examine in detail existing systems and the problems encountered on a daily basis. Contact with the users of the system identified that those problems seriously undermined the workings of the system and there was substantial scope for improvement (see the case study in section 8.3.1). When evaluated against existing systems (table 8.5) the OCDS was considered a substantial improvement proving it is possible to improve existing methods of data recording. Hypothesis iv - *Existing methods of recording, storing and retrieving valuation data for comparable purposes need to be substantially improved.*- cannot be rejected.

Chapter 9 described the possible applications of NVED data to valuation research in the areas of objective valuation methodologies. It identified such standardised data was of particular use for MRA and CBR as well as for the production of trends and statistics used commonly in the valuation profession. This literature review identified that sub hypothesis vi - *Standardised data stored within the NVED can be used for a myriad of purposes* - cannot be rejected

10.2.3 Main hypothesis

The main hypothesis - *The release and pooling of valuation data held by professional property service providers into a national database of valuation evidence will increase the availability of objective comparable evidence for the production of property valuations* - was tested throughout this thesis. Chapter 2 concluded that the greater the level of objectivity within a valuation the greater the probability of its resulting accuracy and that valuation objectivity stems from the use of comparable evidence. Chapters 4 and 5 investigated the sources of comparable evidence and the barriers to releasing data concluding that the main data source were in-house databases but these data were not released due to constraints such as confidentiality and competitive advantage. Sub hypotheses i and ii tested whether sufficient evidence existed for the production of accurate valuations and whether valuers were in favour of data release and pooling. From this it was concluded that sufficient evidence does not exist in the valuation profession and the solution to this problem is to release and combine in-house data recorded by PPSP into a national system which would increase data availability and hence valuation objectivity.

A system of data combination allowing recording, storage and retrieval was then necessary to organise data pooling to make evidence efficiently available to all valuers. Sub hypotheses iv tested whether it was possible to accurately and comprehensively record and store valuation data and this was achieved through the development of the OCDS and accompanying recording standards. It was proved that, through valuer evaluation, the OCDS was a substantial leap forward in the recording a valuation evidence.

Bringing all the sub hypotheses together to test the main hypothesis it is possible to conclude that sufficient data does not exist in the valuation profession but that it is possible to release and pool in-house databases of PPSP into a NVED system based on the OCDS. This NVED will record, store and allow the retrieval of data in such a manner which would greatly increase the availability of valuation data therefore improve the objectivity of valuations. The main hypothesis cannot, therefore be rejected.

10.3 Conclusions.

Valuations are vital to the efficient operation of the property market. Without accurate valuations properties are placed on the market at levels above or below their market worth which, if a common occurrence, will add to the inefficiency of the property market. Additionally poor investment advice leads to bad investment decisions and properties being purchased at levels above their market worth, investors therefore do not maximise investment returns.

Traditional and contemporary valuation techniques rely upon an abundance of comparable evidence, that is the data input into the hybrid art/science valuation approach. This thesis has emphasised the importance of data and how a lack of data leads to inaccurate valuations. The comparable properties provide the objective base of evidence from which valuers extrapolate and perform their analysis. Without such an objective base chapter 3 demonstrated that valuers have to rely on their subjective opinions of value which often lead to errors and inaccuracies. These subjective judgements are minimised where sufficient quantities of data are available to the valuer. Chapter 3 also identified that the frequency of negligence claims increases during poor market conditions where transactions and, therefore, comparable evidence, are scarce. This view is supported by the survey results reported in chapter 4 where it was stated that even in a buoyant market with plentiful transactions only 10% of respondents believed there was always enough valuation evidence available to produce an accurate valuation. This figure halved when market conditions were said to be flat. The property profession is striving to produce accurate valuations 100% of the time so there should always be sufficient evidence available no matter what the market conditions. It is clear, therefore, that data availability within the profession is in need of drastic improvement. The survey by Wyatt (1995) of local authority valuers confirms this statement when only 8% of respondents were satisfied with the levels of valuation data. With data at the core of the valuation process, this data availability issue is one in need of serious consideration and attention, which this thesis has attempted to achieve.

The significance of the data availability issue is further highlighted by looking at the sources of valuation evidence available to the valuer. The main source of valuation evidence stems from the valuer's firm's in-house databases. The very nature of these databases is cause for concern. During pilot work these databases were critically investigated and found to be inefficient, incomplete and often inaccurate, which was a view not supported by the valuers themselves during the survey research. If these databases, and almost 50% of firms relied on these computerised databases backed up by paper records, are the primary source of valuation evidence it is little wonder that valuers are worried about the availability of data. The second cause for concern surrounds the quantity of data available within these databases. Confidentiality and competitive advantage prevent valuation data release into the public domain. This means that only those transaction with which the firms own valuers have dealt with appear in their database. In markets characterised by a large number of competing property service providing firms it is clear that the quantity of data contained in any one database when compared to the total number of transactions in any period is extremely small. With property being heterogeneous in nature, making close comparables difficult to identify at the best of times, this lack of data renders the possibility of identifying four or five close comparables remote. Only by releasing data into the public domain and creating a single database recording all transactions will the chances of locating such close comparables significantly increase. These close comparables provide the objective data and therefore the ability to produce accurate valuations.

As mentioned briefly above, data availability within the valuation profession suffers due to constraints upon data release such as confidentiality clauses and competitive advantage. Survey results indicated that confidentiality, which is the domain of the clients, is the most significant barrier but closely followed by competitive advantage, the domain of the surveying firms. Therefore, any moves towards data release and pooling requires action from both clients and surveying firms. Data cannot, or will not be released, therefore in comparison to other investment markets, property professionals must rely on scarce, imperfect information making the property market inefficient by definition.

The problems associated with a lack of data availability are further compounded in terms of valuation accuracy and variance by the lack of data standards within the profession. There is only a single data influencing factor that is specifically defined by the RICS Code of Practice and that is the size of a property. The RICS define how to measure a property and what measurement basis to use when measuring a specific type of property for a specific purpose. These standards should, although there is no empirical evidence to support this, lead to uniform data usage, recording and reporting. Without measurement standards property sizes could be recorded in a variety of different ways with a valuer or client unsure as to what information the reported figure conveys. However, as for the myriad of other value influencing factors for property none are explicitly defined, indeed there is no firm agreement as to what factors a valuer should take into account when producing a valuation. Without such data definitions how can two valuers expect to produce a similar valuation figure for a property. This is a significant gap in the valuation process which needs to be rectified as soon as possible. The database developed during this thesis does this by providing a separate data field for each factor that will influence the value if the property and also defines each factor. This approach must be adopted throughout the profession to ensure uniformity of approach in the valuation process.

The survey discussed during chapters 3-6 highlights the fact that the valuer's main source of data is the in-house database of the firm. Indeed the majority of respondents of the survey believed the data contained within their databases were not only very accurate but very complete as well. It is therefore logical that a national database will emerge through the combination of in-house data recording systems, via local data sharing agreements. This will be facilitated by the standardisation of database structures and the recording standards associated with these structures. This system will improve access to valuation data, increase the valuer's objective evidence base and improve valuation accuracy. The development of a data system that will greatly improve data availability would require all firms who collect and hold valuation related data to release and pool this data into a national system. This concept of data release and pooling was favoured by 63% of respondents. The creation of this NVED to

record, store and allow access to the valuation evidence was thought by 78% of respondents to be an initiative that would improve the valuation process. The possible advantages and disadvantages of the NVED were presented to respondents to identify whether they thought the theoretical advantages of the NVED would occur in practice. Generally respondents did think that the system would increase the availability of comparable evidence and the efficiency with which it could be collected but were worried, and this is related to the issue of competitive advantage, that firms from outside a sub-market would be able to operate within that market. However, this may actually be an advantage to clients as competition will increase forcing an improvement in the quality of service to keep firms competitive.

A full NVED system will record all property transactions involving professional property service providers and will allow access to comprehensive details of these transactions to every valuer of every participating firm. Access would be limited to only those who contribute data otherwise existing data suppliers would be unwilling to release data if firms could obtain the benefits of such data without themselves contributing anything to the scheme. Pricing and revenue mechanisms would also reflect the level of data use and supply. Optimum access to the NVED would be via the NLIS which secures two main advantages. First, it utilises the networking technology of the NLIS so reducing the technical problems and costs of creating a new network. Second, NLIS will provide on-line access to many property data-sets relevant to the valuer during data collection. The major drawback is that the NLIS is still in its pilot stage and it may be up to two years before it becomes fully implemented and, if this is the case, the NVED scheme may need to progress independently. With Personal Computer access to the internet, E-mail and other on-line property data sources such as FOCUS and EGi constantly growing and complimenting the NLIS and NVED the future for valuation data collection lies firmly at the valuers desktop.

The NVED basis, developed using Microsoft Access, has a standard data structure comprising a number of fields each recording a data item which has a direct influence on the value of property. The NVED comprises two sections for the office property sector, the only section for which the database structure has so far been developed.

First, the investment property sector records details of the whole building and the tenancies within the building and second, the single transaction section records details of a freehold vacant possession transaction or a single leasehold transaction. Each section is searchable by any data field or combination of fields allowing for the efficient and accurate retrieval of comparable evidence.

Each data field within the database has an accompanying recording standard accessible from the database screen. This ensures on-line help is available during data recording. This was deemed essential as one of the main problems identified from existing comparable evidence databases is the failure of the database to record data in a uniform manner. On-line recording standards attempt to ensure that data recorders record identical data items in an identical and consistent manner. Standardised data lists in the form of drop down menus also ensure the uniform recording of common data items such as lease terms and incentives. These safeguards aim to make sure that when valuers retrieve comparable evidence from the system they are certain of exactly what information a combination of data fields presents so permitting the valuer to assign a value to these data fields. The issue of data standardisation and uniformity is a vital one. With data issues within the property profession clouded by a lack of clear data standards it is important for any national system to be absolutely clear in terms of data definitions and procedures, especially a system to be contributed to, data wise, by individual members. Pilot work and contact with data managers suggests that it is all too easy for valuers, and any professionals to whom data recording is not second nature, to record data in a way that they believe is correct and not in a way which is correct. A system with anything but a rigid method of data recording is doomed to failure if the data that the system records is to be used by third parties. Too many issues of data ownership and liability arise to consider a system with anything other than this rigid structure. Valuers seem to accept this premise with over 70% of respondents to the survey believing valuation data recording standards were a vital ingredient of the NVED system.

A fully implemented NVED will improve the objectivity of the valuation process in two ways. Firstly, improving the availability of data a national system increases the

likelihood of the valuer finding 'close' comparables so reducing the need for subjective value adjustments. Secondly, improving the quality of comparable evidence recording ensures data are accurate and convey the correct information reducing primary data errors. Valuers are generally unaware of the importance of data recording and how prompt and accurate data recording will, in the short and long term, make their job easier and more efficient. It is up to the RICS and the decision-makers within surveying firms to emphasise the importance of data recording both to the individual firms and the whole profession as an efficient data system will lead to a more efficient valuation process.

The NVED structure was evaluated by two surveying firms each of which currently possesses a computerised database system. Both firms were impressed with the wealth of data recorded by the system and the standardised nature of the data recording. Both agreed it recorded and stored data in a manner that was far more comprehensive and efficient that their existing systems. However the smaller firm, Sanderson Townend and Gilbert, felt the system too complex for their data needs although accepted it was the correct route to take in terms of data management. They did not think they could compel valuers to spend the time recording data even though admitting that data recording was more efficient. However they have retained a copy of the system for future use when they believe their employees are sufficiently technically motivated to utilise the system to its full potential. The nationally based firm, Jones Land Wootton, felt they could certainly benefit from such a system and eventually from such a system on a national scale. It terms of current application they felt it had major advantages as a networked application throughout the London office and indeed their branches throughout the country. JLW are currently developing an integrated property management system which requires the storage of property characteristics and hope to incorporate such a comparable database within this in-house system.

The future of valuation data collection must revolve around data sharing and pooling agreements and the eventual creation of a national database system such as the NVED. However, it is up to the more progressive property service providing firms in terms of data agreements and, to a large extent, the RICS to educate the rest of the profession

as to the advantages and benefits of data sharing and new, on-line technology. Local data sharing agreements should be the starting point for a national system with these LVED's created as soon as possible before gradually expanding to form the national version. Increases in property data availability via the internet and NLIS will encourage the competitors of surveying firms to collect and analyse data and offer property advice services. Utilising existing technologies such as the internet, which most surveying firms are beginning to do to a greater or lesser extent, and implementing new technologies will allow competitors to establish a foothold in property market service provision and exploit technological areas of the surveying profession currently undervalued by existing surveying firms. Although this would benefit the property market service sector in terms of efficiency due to increased competition it may be at the expense of professional surveyors in favour of multi-disciplinary firms capable of providing legal and accountancy services as well. It is up to the property profession to take positive action to evolve data sharing agreements and fully support new initiatives such as the NLIS and NVED to remain leading service providers in the property market. The advantages of the NVED are clear and to be seen to be taking positive action to improve valuation accuracy can only benefit the profession as a whole and increase the standing of the profession in the eyes of its clients.

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Appendices

Appendix A Survey research methodology.

Appendix Ai) Data collection tools and techniques.

Face to face interviews involve direct contact between the interviewee and interviewer with the interview schedule providing guidance for the interviewer but this schedule is not usually seen by the interviewee. It is possible to virtually discard a interview schedule to allow unstructured interviews, the resulting pattern of which depends upon the responses provided by the interviewee. The interviewer generally consults the interview schedule for guidance and asks interviewees the appropriate questions, the responses to which are conveyed directly to the interviewer who can write down the responses, code responses on the spot or video/tape record the interview to allow more detailed analysis post interview. Recording interviews is the most common method as it permits the interviewer to devote his/her full attention to the respondents answer without breaking off to write down responses. Direct contact between the interviewee and interviewer allows the interviewee to ask directly the interviewer for clarification of a question meaning and, likewise, the interviewer may probe the respondent for additional information from a response.

The advantages of face to face interviews are commonly noted in survey research texts and include:

- The interviews provide rich and spontaneous information.
- The flexibility of direct contact between the interviewer and interviewee allows the continuous alteration of interview schedules to suit the interviewer.
- Direct contact permits response probing.
- Direct contact permits question clarification.
- Responses can be coded on the spot to reduce analysis time.
- The interviewer can control the order of questions and decide to leave out or add questions.

- Direct contact allows demonstrations and the gauging of reactions.
- Direct contact allows the questioning of low intelligence groups.
- Low non response rates.

There are several disadvantages however:

- Interviews are time consuming and must be scheduled at mutually convenient times.
- The need for interviewer presence increases the cost of face to face interviews dramatically.
- Data processing of open ended interview data is time consuming and difficult.
- Direct contact can lead to interviewer bias during prompting and explanations.
- It is difficult to maintain consistency without a structured interview schedule.
- Interviewer enthusiasm, or lack of it, may influence the respondent.
- To cover a large sample more than one interviewer may be necessary leading to differing interview techniques and a lack of uniformity in approach and execution.
- It is difficult to cover issues of a sensitive nature.

The flexibility of face to face interviews makes the technique ideal for unstructured interviews and qualitative research. The unstructured nature of responses makes analysis difficult and prohibits the use of statistical analysis thereby rendering face to face interviews, if they are to be used to their full advantage, unsuitable and, indeed, unnecessary for the collection of quantitative data especially from large sample groups. Unstructured interviews allow the examination of the interview topics in great detail so are ideal for qualitative data research, the majority of pilot work and as an initial stage in the development of more structured data collection techniques. Of course there may be a case for using structured face to face interviews which is the type of data collection method employed by the typical door step or high street market researcher. These have the advantages of high response rates because the respondent is approached personally and if he/she refuses to respond the interviewer can move directly to another person. Several interviewers are able to conduct the same survey and the structured nature of the questionnaire ensures uniformity in the collection of data. The disadvantages revolve around the expense of employing several interviewers.

Mail or postal questionnaires involve no direct contact between the interviewer and respondent. All contact is through the questionnaire. The interviewer develops the questionnaire, which will usually consist mainly of closed answer questions, and sends it to the potential respondent who interprets the questions to the best of his/her ability and responds as appropriate. The respondent then returns the questionnaire to the interviewer. There is no direct contact between the two parties so the interviewee is under no pressure to return the questionnaire so response rates are low and in many cases incentives are necessary to increase response rates to acceptable levels. There is no question clarification or response probing so the interviewer must be content with the responses received which, depending upon the question wording, will depend on the personal interpretation of the individual respondent. This is why it is vital to word questions as simply as possible, avoid ambiguities and provide the respondent with all possible response choices. Further questionnaire and question design methodology appears in the next section.

The main advantages of mail questionnaires are:

- Their cheap cost as costs only involve postage, printing and the time of the interviewer spent designing, piloting and implementing the questionnaire.
- The standardised responses provided by questionnaires makes data processing relatively easy.
- Very large samples can be covered in relatively short periods of time.
- Sampling is more accurate as coverage is more extensive and it is possible to address the questionnaire to particular individuals.
- There is no direct contact between interviewer and interviewee so there is no interviewer bias.
- Consistency of approach is assured.
- The questionnaire may be used in an identical format in future years to update the study.
- Questionnaires are convenient for respondents as they may complete it at one, or over several sittings.
- Questionnaires can cover issues of a personally sensitive nature as responses can be anonymous.

Disadvantages include:

- Poor response rates as respondents usually have no incentive to reply.
- No direct contact means no response probing or question clarification.
- Questions must be kept as simple as possible and address only one issue at a time.
- Answers are usually standardised reducing the quality of responses.
- They cannot cover people within low intelligence groups or with a poor educational background.
- The interviewer has no control over the order in which respondents answer questions.
- The questionnaire is often passed onto someone outside the target population.
- A questionnaire can only obtain limited information as it must be kept short to encourage response.
- It is very difficult to obtain quality open ended responses.

Postal questionnaires are ideal for collecting quantitative data from large sample groups from wide geographical areas. Costs are low, consistency of approach assured and interviewer bias minimised. As this technique is ideal for collecting quantitative data, postal questionnaires facilitate the use of descriptive and inferential statistical analysis because collected data are standardised and easy to code. Postal questionnaires also facilitate the use of random sampling as are not limited to certain geographical areas. It is also quicker to conduct an investigation by questionnaire than by any other highly structured data collection method (Wilson 1996). If the sample is from a population of reasonably high intelligence and closed answer questions will provide a sufficient quality of response, then postal questionnaires are the preferable data collection method.

Telephone questionnaires fall half way between face to face interviews and postal questionnaires. They have the advantages of direct contact between the interviewer and interviewee and work equally well for both closed and open ended questions, especially when a copy of the questionnaire or interview schedule is sent to the interviewee in advance. They cannot cover as large a sample as postal questionnaires and are more expensive and less convenient for the respondent, especially if the respondent is frequently away from the telephone. Advantages include the relatively high first contact

rate obtained and the rapidity with which several interviewers can cover a sample of several hundred respondents (Tull 1973). Telephone questionnaires are ideal for medium sized and small samples where there is a single interviewer or large samples with several interviewers although this does introduce the problem of consistency of approach.

Appendix Aii) Questionnaire design methodology.

The design of a closed answer, structured, quantitative questionnaire should be a carefully planned operation. Hanville, Jowell et al (1987) sum up the requirements of such a questionnaire:

> *"A good questionnaire has to be designed specifically to suit the study's aims and the nature of its respondents. It needs to ...be clear, unambiguous and uniformly workable. Its design must minimise potential errors from respondents, interviewers and coders. And, since people's participation in surveys is voluntary a questionnaire has to help in engaging their interest, encouraging their co-operation and eliciting answers as close as possible to the truth."*

Indeed it is generally recognised that the best starting point for questionnaire design is to refer to previously questionnaire that successfully achieved its aims. (Oppenhiem 1992, Hanville, Jowell et al 1987)

Quantitative surveys have four basic consecutive components according to Thomas (Thomas 1996) which are drawing sample units from some population, developing and testing standardised ways to measure these units, applying them to the sample units and making inferences to the population from which the sample was drawn. Quantitative surveys use explicit, standardised and objective methods of sampling, data collection and data analysis (Thomas 1996). In the design of a closed answer questionnaire the skill is in designing questions which are not only relevant and revealing but at the same time convey the same meaning to all respondents so are a true measure of the attitudes and opinions of the sample.

question type ensures that the results of all respondents, including different groups of respondents, are easily comparable coupled with the assurance that all possible responses have been considered (Oppenhiem 1968). All closed answer questions should start as open ones in pilot interviews. The responses may then be categorised and these categories tested with the actual question in the later stages of pilot work. It is essential to thoroughly test closed questions to ensure they convey the information they are supposed to and that the instructions accompanying the question are clear. The most common type of closed question asks the respondent to choose a response from a list of possibilities, the most simple of which is the dichotomous question where respondents simply select a yes or no response, although yes and no responses are usually combined with a don't know response to allow a neutral view. Another common question type involves the use of rating scales. The Likert scale is the most common rating scale and generally provides respondents with a statement and a list of responses which gauge the attitude of the respondent to the statement. An odd number of possible responses, generally 5 or 7, are provided to allow a neutral midpoint. An example of such a scale would be the response choices of "strongly agree, agree, neither agree nor disagree, disagree, strongly disagree" (Wilson 1996). The respondent simply ticks the response that represent his/her feelings towards the statement. Rating scales can also be used as objective assessments, for example the rating of quality, and as self ratings, for example of personality traits or attitudes. (Oppenhiem 1968) The problem of rating scales is the danger of the halo effect (Oppenhiem 1968). Instead of giving his/her attention separately to individual questions the respondent may let him/herself be influenced by an overall feeling of like or dislike and tick the same response each time. A third type of closed question asks the respondent to rank a list of options provided by the interviewer in order of importance. The interviewee may be asked to select the top five items from a list of ten in order of importance with one being the most important, two the second most important and so on.

Whatever the question type the function of a question is to:

> *"...elicit a particular communication"* and to gather *"...certain attitudes and information held by a respondent on a particular topic with as little distortion as possible."* (Oppenhiem 1968)

Question wording will depend upon the particular population being surveyed but it is always vital to use words and technical terms familiar to that population to ensure respondents understand the question and question instructions.

Generally, closed questions are extremely useful in eliciting data in a consistent manner and:

> *"The failings of closed questions are more likely to be due to omissions of an important choice category (i.e. poor design) than the use of the form in the first place" (*Social and community planning research 1987)

Roger Thomas (Thomas 1996) sets out several requirements to which a self completion data collection tool must adhere. These are:

- Make clear who is asking for information, for what purposes and who will have access to the information.

This information is usually conveyed in a covering letter sent with the questionnaire which also tries to encourage interest in the survey in an attempt to increase response rates. The letter should be personalised on headed note paper again in an attempt to persuade the respondent to reply. All covering letters should be piloted as with the main questionnaire.

- Make clear to each respondent exactly what she/he is expected to do by way of completing and returning the document.
- Provide a painless way of returning the document.

This is usually achieved by the inclusion of a pre paid and addressed reply envelope.

- Aim to attract, not frighten off the prospective respondent.
- Use instructions and questions which are clearly and unambiguously expressed in simple language.

- Provide appropriate pre-coding boxes or spaces for verbatim replies.
- Make data processing easy.

There are also guidelines to follow in regard to the structure and layout of the questionnaire (Oppenhiem 1992, May 1993). The questionnaire should be kept as short as possible so as to not put off respondents before they even begin to respond. It should usually be no longer than 6 sheets of A4 and also easy to read in terms of font size with a layout that does not appear cluttered. The questionnaire should not begin with questions of a sensitive nature as this may put off respondents and they may refuse to complete the questionnaire but instead open with straightforward questions to introduce respondents to the common question types used throughout and make them feel at ease. These methods are designed with the sole aim of increasing response rates while question design methods are used to elicit accurate responses.

Following the guidelines of Thomas (Thomas 1996), keeping questions as simple as possible, using an good questionnaire structure and undertaking extensive pilot work should lead to the development of a successful questionnaire, whether it collects quantitative or qualitative data or a mixture of both.

Appendix B Pilot work - Data collection.

APPENDIX Bi) Pilot comparable database questionnaire

Questions concerning the use of computerised comparable database systems.

General Details

Name of firm

Name of correspondent.

Position in firm

Telephone number

1. What methods do you use to record comparable evidence?

Please tick appropriate box.

Paper Records and files. ☐

Personal memory ☐

Card index files . ☐

Computerised database system. ☐

A combination of the above. ☐

Other, please specify.

The remaining questions refer to computerised comparable databases only.

2. Which of the following general information fields does the comparable database contain?

Address ☐

Rental and capital information. ☐

Yield information ☐

Size ☐

Accommodation ☐

Other, please specify.

Lease terms ☐

Lease incentives ☐

Marketing History ☐

Tenant covenant ☐

Services ☐

3. What standards are employed to ensure the accurate and consistent recording of comparable evidence?

4. Are the recording standards:

Very Limited ☐ Limited ☐ Acceptable ☐ Reasonably detailed ☐ Very detailed ☐

5. What are the main problems of the database? Rank in order the top 5, 1= biggest problem.

It is not comprehensive. ☐

Incomplete addresses. ☐

Computer illiteracy of valuers. ☐

Poor graphical interface. ☐

Unwillingness of surveyors to record data. ☐

Accuracy of the data. ☐

Completeness of data . ☐

Others, please specify . ☐

6. Is the database software - Bespoke ☐ Off the shelf customised? ☐

E.g. Dbase

Other?

7. Is the comparable database on-line throughout the office?

Yes ☐ No ☐

8. If your firm has branches throughout the country is the database available on-line to all these branches?

Yes ☐ No ☐

9. Who has access to the database? Tick appropriate.

All Surveyors within the firm? ☐

All surveyors in the valuation department? ☐

A select few ? ☐

Others, please specify.

10. Who records the comparable evidence within the database?

Secretary ☐

Specialised clerk ☐

Researcher ☐

Valuer ☐

Trainee ☐

Others, please specify . ☐

11. Is the accuracy of the recording checked?

Yes ☐ No ☐

If yes who checks it and how?

12. Does the database provide the valuer with all the major details required from a comparable?

Yes ☐ No ☐

If No, from where are the remaining details obtained?

If you have a copy of the standards you use to ensure accurate and reliable data recording I would be most grateful if you could send me a copy which would be treated in strict confidence.

Thank you for your co-operation.

The findings of this survey will remain strictly confidential.

Appendix Bii) Semi structured interviews with one valuer from each area.

SEMI-STRUCTURED INTERVIEWS WITH VALUERS TO IDENTIFY VALUATION DATA AVAILABILITY, DATA REQUIREMENTS AND THE REACTION TO A NATIONAL VALUATION EVIDENCE DATABASE.

INTRODUCTION.

These interviews aim to assess:

1. The current office valuation data accessibility and compare it with valuation data requirements.
2. Existing sources of comparable evidence including their accuracy and reliability.
3. The existing methods of recording, storing and retrieving comparable evidence.
4. The reaction of valuers to the concept of a National Valuation Evidence Database (NVED) and the affect a NVED would have on the valuation process.

SECTION 1. PERSONAL INFORMATION.

1. Name.

2. Age. **18-25** ☐ **26-35** ☐ **36-45** ☐ **46-55** ☐ **56+** ☐

3. Qualifications - ARICS, FRICS, Graduate.

4. Position in Firm.

5. What percentage of your day to day duties are taken up with valuation work?

%

6. Typical Valuation work undertaken.

7. Level of computer literacy.

Very Poor, ☐ **No computer use.**

Poor , ☐

Average , ☐ **Word Processing and spreadsheet Skills.**

Good, ☐

Very Good . ☐ **Programming Knowledge.**

SECTION 2. CURRENT AVAILABILITY OF VALUATION EVIDENCE.

1. What do you consider to constitute valuation evidence?

2. What are your main sources of Valuation Evidence? Rank top 5.

- **Data resulting from sales, lettings and rent reviews with which the firm has dealt.** ☐
- **Other valuers within your firm.** ☐
- **The property press.** ☐
- **General expertise and experience.** ☐
- **Publicly available databases, e.g. FOCUS, PROVISION.** ☐
- **Aggregated trends and statistics.** ☐
- **Valuation Office Data.** ☐
- **Agents' particulars.** ☐
- **Other valuers within localised firms.** ☐
- **Other, please specify .** ☐

3. How would you rate the accuracy of data from these sources? (For top 5)

Your Rating.	Very Poor	Poor	Average	Good	Very Good
1	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐
4	☐	☐	☐	☐	☐
5	☐	☐	☐	☐	☐

4. How would you rate the availability of data from these sources? (For top 5)

Your Rating.	Very Poor	Poor	Average	Good	Very Good
1	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐
4	☐	☐	☐	☐	☐
5	☐	☐	☐	☐	☐

5. How would you rate the quality and completeness of these sources as comparable evidence? (For top 5)

Number/rating.	Very Poor	Poor	Average	Good	Very Good
1	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐
4	☐	☐	☐	☐	☐
5	☐	☐	☐	☐	☐

6. Is there sufficient valuation evidence available with which to produce accurate valuations?

7. How widely is valuation evidence exchanged between valuers on the data "grapevine"?

8. Is the "grapevine" purely personal or is there any sort of agreement between firms?

9. Would you like to see the quality of valuation evidence improved?

10. Please provide an outline of the procedure you would follow in the production of an office valuation report?

SECTION 3. VALUATION DATA REQUIREMENTS.

1. Is the current level of valuation evidence sufficient to produce a valuation which you would have full confidence would stand up to a negligence claim?

2. Where could improvements in the availability of valuation evidence be made?

3. Which of the following valuation information factors should a comparable provide for the production of a valuation?

- **Rent agreed/ Capital price** ☐
- **Yield information** ☐
- **Size - gross or net internal areas, number of floors** ☐
- **Quality of Accommodation** ☐

- **Services including parking** ☐
- **Lease terms - rent review pattern, service charge, lease length, repairing covenant, user, alienation.** ☐
- **Lease incentives - rent free periods, premiums, fitting out costs, etc .** ☐
- **Marketing history of property - arms length?** ☐
- **Strength of tenant covenant ?** ☐
- **Others, please specify .** ☐

4. What data should be recorded on the following items?
i) Lease terms.
ii) Lease incentives.
iii) Marketing history.

5. On average, how many comparables do you use to produce a valuation figure?

6. How many comparables would you ideally require?

7. What would be the ideal information set in the production of a valuation?

8. Would you like access to Valuation Office data?

9. What would be the advantages of access to Valuation Office Data?

SECTION 4. NATIONAL VALUATION EVIDENCE DATABASE.

1. Are you in favour of the pooling of private sector valuation evidence to form a National Valuation Evidence Database? If not why not?

2. What do you perceive would be the main advantages of a NVED?

3. Do you believe that date pooling will eventually occur?

If so what time-scale?

1-5 years, ☐ **5-10 years,** ☐ **Over 10 years.** ☐

4. Which of the following do you believe are the main barriers to private sector data release and pooling? Rank the top five, 1 as the most important.

- **Confidentiality** ☐
- **Competitive advantage** ☐
- **Copyright and the Data Protection Act.** ☐
- **Conservatism** ☐
- **Data control** ☐
- **Incompatibility of data** ☐
- **Duty of care in ensuring data accuracy** ☐
- **Expense** ☐
- **Other, please specify.** ☐

5. Would the combination of Valuation Office data and pooled private sector valuation evidence provide a comprehensive National Valuation Evidence Database? If not why not?

6. How would a nationally accessible NVED affect the valuation process? Would it:

	Yes	No
• **Increase the available information base?**	☐	☐
• **Increase efficiency in data collection?**	☐	☐
• **Provide more accurate and reliable data?**	☐	☐
• **Reduce the subjective nature of valuations?**	☐	☐
• **Increase competition by removing quantity of data as basis for securing business?**	☐	☐
• **Reduce the monopolistic nature of some markets?**	☐	☐
• **Lead to more reliable valuations?**	☐	☐
• **Others, please specify.**	☐	☐

7. If every valuer recorded transactions using the same standards would it improve the quality of the valuation process?

8. Would you like to see an accurate, reliable, comprehensive and nationally accessible valuation evidence database?

9. Would it improve the valuation process?

Any Other comments?

APPENDIX C Main questionnaire survey

Appendix Ci) Questionnaire survey covering letter

RE: RESEARCH INTO OFFICE VALUATION COMPARABLE EVIDENCE.

Dear
The recent Mallinson report into Commercial Property Valuations highlighted the need for increased amounts of information to be made available for the production of valuations. The report advocates the construction of national databases to which all Chartered Surveying firms contribute and all have access. The development of such a National Valuation Evidence Database could occur through the combination of existing private sector comparable databases and those of the Valuation Office, with subsequent transactions being recorded into the database. This system would increase the comparable evidence available to all valuers.

This PhD project aims to promote the concept of a National Valuation Evidence Database and, in addition, develop a set of valuation data recording standards to be used within a national database or within any private sector database. The objectives of the standards are as follows.

- To record and present the essential details the valuer requires from a comparable.
- To ensure the uniform recording of comparable evidence.
- To be easy to understand and use.
- To allow the presentation of the comparable in a report format.

In order that the development of such a system and accompanying standards is designed with the valuers needs of primary importance this research aims to investigate the following:

- Current data availability for OFFICE valuations.
- Data requirements for OFFICE valuations.
- Reaction to the concept of a National Valuation Evidence Database.

The attached questionnaire, relating exclusively to OFFICE property, is designed to cover the above areas and simply involves the ticking of boxes. The questionnaire should take no more than 10 minutes to complete. I would be extremely grateful if you would complete the attached questionnaire, the responses to which will be treated in strict confidence and as personal opinions and not those of the firm, and return it to me in the enclosed, stamped addressed envelope.
Thank you for your co-operation.

Yours sincerely,
Steven Rowley BSc.(Hons)

Appendix Cii) Main questionnaire survey

Questionnaire examining OFFICE valuation data availability, requirements and reaction to a National comparable database.

SECTION A. PERSONAL INFORMATION.

1. **Name.**

2. **Name of firm.**

3. **Size of firm.** Locally based ☐ Regionally based ☐ Nationally based ☐

4. **Position in firm.**

5. **Qualifications (TICK APPROPRIATE BOXES)**

FRICS ☐ BSc. (Hons) ☐ Other, Please specify.

ARICS ☐ ISVA ☐

6. **Age.** 18-25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ 56+ ☐

7. **Current valuation work undertaken. (TICK APPROPRIATE BOXES)**

Loan Security. ☐ Rent review valuations. ☐

Rental valuations. ☐ Insurance Valuations. ☐

Marketing valuations. ☐ Compulsory purchase valuations. ☐

Asset valuations. ☐ Other.

8. **Personal level of computer literacy .(TICK APPROPRIATE BOXES)**

	Poor	Standard	Advanced
Word Processing (e.g. Word)	☐	☐	☐
Spreadsheets (e.g. Excel)	☐	☐	☐
Databases (e.g. Dbase)	☐	☐	☐
Valuation Packages (e.g. Circle)	☐	☐	☐

SECTION B. CURRENT AVAILABILITY OF VALUATION EVIDENCE.

1. What methods does your firm use to record comparable evidence?

(TICK APPROPRIATE BOXES)

Personal memory. ☐

Paper Records and files. ☐

Card index files. ☐

Computerised database system . ☐

Others, please specify. ☐

2. What are your main sources of Valuation Evidence? **PLEASE RANK**

TOP 3

- Recorded data resulting from sales, lettings and rent reviews with which the firm has dealt. ☐
- Personal experience and knowledge ☐
- Other valuers within your firm. ☐
- The property press. ☐
- Publicly available databases, e.g. FOCUS, PROVISION. ☐
- Valuation Office Data. ☐
- Agents' particulars. ☐
- Other valuers within localised firms . ☐
- Other, please specify. ☐

2i). How do you rate the accuracy of data from these 3 sources?

Your Rating.	Very Poor	Poor	Average	Good	Very Good
1	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐

2ii). How do you rate the quality and completeness of these 3 sources as comparable evidence?

Your rating.	Very Poor	Poor	Average	Good	Very Good
1	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐

3. Are you able to find sufficient quality valuation evidence to produce accurate valuations? (TICK APPROPRIATE BOX)

	Never	Seldom	Normally	NearlyAlways	Always
Buoyant market.	☐	☐	☐	☐	☐
Flat market.	☐	☐	☐	☐	☐

4. What do you perceive as an accurate Open Market Valuation? (TICK APPROPRIATE BOX)

A valuation within 5% of the realised sale price. ☐

A valuation within 10% of the realised sales price. ☐

A valuation within 20% of the realised sales price. ☐

5. Would you like to see the quality of valuation evidence improved?

Yes. ☐

No . ☐

SECTION C. VALUATION DATA REQUIREMENTS.

1. Information on which of the following value influencing factors is ESSENTIAL from a comparable?

(TICK APPROPRIATE BOXES)

Rent agreed/ Capital price.	☐	Services including parking.	☐
Lease terms.	☐	Quality of Accommodation.	☐
Size.	☐	Marketing history of the property.	☐
Lease incentives.	☐	Strength of tenant covenant.	☐
Yield information.	☐	Planning information .	☐

Others, please specify. ☐

2. With regard to lease terms, which of the following factors are essential to the valuer?

Nothing, not important.	☐	Break clauses.	☐
Rent.	☐	Alienation clause.	☐
Rent review pattern.	☐	User clauses.	☐
Length of lease.	☐	Repairing covenants.	☐
Lease commencement date.	☐	Strength of tenant covenant.	☐

Others. ☐

3. With regard to the lease incentives, which of the following factors are essential to the valuer?

Nothing, not important.	☐	Rent free periods.	☐
Fitting out costs.	☐	Premiums.	☐
Reverse premiums.	☐	Reduced rents.	☐

Others. ☐

4. With regard to the marketing history of the property, which of the following factors are essential to the valuer?

Nothing, not important.	☐	Has property been marketed?	☐
How long on market?	☐	Marketed by how many agents?	☐
Degree of active marketing?	☐	Arms length deal ?	☐
Marketing process.	☐		

Others. ☐

5. What criteria are important in the selection of a comparable? (TICK APPROPRIATE)

Construction type.	☐	Date of comparable.	☐
Lease terms.	☐	Location.	☐

Services. ☐ Size . ☐

Price range. ☐ Others. ☐

6. From the completion date of the transaction or rent review how many months can elapse before the comparable becomes unusable? (TICK APPROPRIATE BOX)

Buoyant market. ☐ Months

Flat market. ☐ Months

SECTION D. NATIONAL VALUATION EVIDENCE DATABASE.

1. Are you in favour of the pooling of private sector comparable evidence to construct a National Valuation Evidence Database?

Yes. ☐

No. ☐

If no are you in favour of regional data pooling?

Yes. ☐

No . ☐

2. What do you perceive as the main barriers to data release and pooling? (PLEASE RANK TOP 3)

Competitive advantage. ☐ Confidentiality. ☐

Conservatism. ☐ Copyright and the Data Protection Act. ☐

Data control. ☐ Duty of care in ensuring data accuracy. ☐

Expense. ☐ Incompatibility of data. ☐

Others. ☐

3. Do you see a need for a standard method of recording valuation comparable evidence?

Yes ☐

No ☐

4. The use of valuation data recording standards should ensure which of the following?

(RANK TOP 3)

The data are accurate. ☐

The data are uniform in nature. ☐

The property data are accurately spatially referenced. ☐

The essential comparable details are recorded. ☐

The database is easy to understand and use. ☐

5. Which of the following theoretical advantages of a NVED do you think would actually occur in reality? (TICK APPROPRIATE BOXES)

	Yes	Maybe	No
Provide the valuer with a single source of valuation evidence?	☐	☐	☐
Improve the efficiency of data collection?	☐	☐	☐
Increase the availability of comparables?	☐	☐	☐
Increase competition between Chartered Surveying firms?	☐	☐	☐
Improve the quality of service to clients and valuation accuracy?	☐	☐	☐

6. Which of the following theoretical disadvantages of a NVED do you think would actually occur in reality? (TICK APPROPRIATE BOXES)

	Yes	Maybe	No
Destroy a firms traditional information advantage built up over time?	☐	☐	☐
Allow valuers to operate in an area where they have no expertise?	☐	☐	☐
Allow London based firms to operate throughout the national market?	☐	☐	☐
Reduce the need for valuer skill and experience?	☐	☐	☐
Reduce the number of small and regional firms producing valuations?	☐	☐	☐

7. Do you believe the provision of an accurate, reliable and comprehensive NVED would improve the valuation process?

Yes. ☐

No. ☐

ANY OTHER COMMENTS.

Appendix Ciii) Follow up letter.

RE: Research into comparable evidence and a National Valuation Evidence Database

Dear ,
You may remember that during October I sent you a questionnaire concerning comparable evidence usage for **office** valuation purposes and attitudes to a National Valuation Evidence Database. So far response rates have been reasonable with a wide range of interesting responses so far received. However, for the purpose of my PhD project I wish obtain as many replies as possible. According to my records I have not yet received a response from you. This may be due to the original questionnaire not reaching you, as has occasionally been the case, or a lack of time available to reply. I enclose with this letter another copy of the questionnaire and a pre-paid envelope in which to return it. Although the questionnaire may look long it is simply a question of ticking or numbering boxes and requires no open ended responses. The completion time should be no more than 10 minutes and the results will be treated in strict confidence.

The questionnaire has two purposes. Firstly, to examine the differing sources of comparable evidence and the information derived from comparables. Secondly, to elucidate attitudes to a National Database comprising valuation data. The National Database would contain comprehensive comparable evidence supplied by and available to all surveying firms throughout the country. The questionnaire aims to examine what percentage of the profession are for or against such a concept, the results of which will be reported, so it is vital to get your opinion registered.

I would be most grateful if you would take the time to complete the questionnaire and return it to me as soon as possible. If you don't have the time to respond I would be more than happy for you to pass the questionnaire onto someone else in your firm who could complete it instead.

Thank you for your time and co-operation.

Yours sincerely,
Steven Rowley BSc.(Hons)

Appendix D Questionnaire analysis

Appendix Di) The accuracy ratings of the valuation evidence sources.

	Very Good	Good	Average	Poor	Very poor	Number
Data from firms lettings etc.	52	41	7			100
Personal experience	22	43	12			77
Other in house valuers	9	18	6			33
The property press		8	11	5	1	25
Publicly available databases		10	18		1	29
VO data		1				1
Agents particulars	2	8	18	3		31
Other valuers in localised firms	12	55	26	1		94

Appendix Dii) The quality and completeness ratings of the valuation evidence sources.

	Very Good	Good	Average	Poor	Very poor	Number
Data from firms lettings etc.	43	45	9	3		100
Personal experience	17	38	21	1		77
Other in house valuers	4	9	20			33
The property press		1	10	12	2	25
Publicly available databases	1	7	12	8	1	29
VO data		1				1
Agents particulars	1	8	16	4	2	31
Other valuers in localised firms	8	46	37	3		94

Appendix Diii) The ranks of frequency, accuracy and quality and completeness of the valuation evidence sources.

	Mean rating of accuracy	Mean rating of quality and completeness	Frequency rank	Accuracy rank	Quality and completeness rank
Firms own data	4.43	4.31	1	1	1
Personal experience	4.13	3.90	3	2	2
Other in house valuers	4.09	3.52	4	3	4
Property press	3.04	2.44	7	7	7
Publicly available databases	3.26	2.93	5	6	6
Agents particulars	3.31	3.07	6	5	5
Other localised valuers	3.84	3.71	2	4	3

Appendix E) Statistical analysis of questionnaire results

Appendix Ei) Contingency table of valuation evidence sources and their associated accuracy ratings

Accuracy ratings						
Source	Very Poor	Poor	Average	Good	Very Good	Row Total
Firms own data	0 (0.5) 0%	0 (2.1) 0%	7 (25.4) 7.1%	41 (47.9) 22.7	52 (25.1) 53.6%	100
Personal experience	0 (0.4) 0%	0 (1.6) 0%	12 (19.6) 12.2%	44 (37) 23.8%	22 (19.4) 22.7%	78
In house valuers	0 (0.2) 0%	0 (0.7) 0%	6 (8.3) 6.1%	18 (15.7) 9.7%	9 (8.2) 9.3%	33
Property press	1 (0.1) 50%	4 (0.5) 50%	12 (6) 11.2%	8 (11.4) 4.3%	0 (6) 0%	25
Available databases	1 (0.1) 50%	0 (0.6) 0%	18 (7.3) 18.4%	10 (13.8) 5.4%	0 (7.2) 0%	29
Agents particulars	0 (0.2) 0%	3 (0.6) 37.5%	18 (7.8) 18.4%	8 (14.7) 4.3%	2 (7.7) 2.1%	31
Local valuers	0 (0.5) 0%	1 (1.9) 12.5%	26 (23.6) 26.5%	55 (44.6) 29.7%	12 (23.4) 12.4%	94
Column Total	2 0.5%	8 2.1%	98 25.1%	185 47.4%	97 24.9%	390 100%

Pearsons Chi Square value 164.4 Degrees of frequency = 24
Level of significance 0.000

Appendix Eii) Contingency table of valuation evidence sources and their associated quality and completeness ratings.

Quality and completeness ratings.						
Source	Very Poor	Poor	Average	Good	Very Good	Row Total
Firms own data	0 (1.3) 0%	3 (7.7) 10%	9 (32.3) 7.1%	45 (39.5) 29.2%	43 (19.2) 57.3%	100
Personal experience	0 (1) 0%	1 (6) 3.3%	22 (25.2) 17.5%	38 (30.8) 24.7%	17 (15 22.7%	78
In house valuers	0 (0.4 0%	0 (2.5) 0%	20 (10.7) 15.9%	9 (13) 5.8%	4 (6.3) 5.3%	33
Property press	2 (0.3) 40%	12 (1.9) 40%	10 (8.1) 7.9%	1 (9.9) 0.6%	0 (4.8) 0%	25
Available databases	1 (0.4) 20%	8 (2.2) 26.7%	12 (9.4) 9.5%	7 (11.5) 4.5%	1 (5.6) 1.3%	29
Agents particulars	2 (0.4) 40%	4 (2.4) 13.3%	16 (10) 12.7%	8 (12.2) 5.2%	1 (6) 1.3%	31
Local valuers	0 (1.2) 0%	2 (7.2) 6.7%	37 (30.4) 29.4%	46 (37.1) 29.9%	9 (18.1) 12.	94
Column Total	5 1.3%	30 7.7%	126 32.3%	154 39.5%	75 19.2%	390 100%

Pearsons Chi Square value 198.8 Degrees of frequency = 24
Level of significance 0.000

Appendix Eiii) Relationship between computer literacy and data pooling.

Computer literacy	**Yes**	**No**	**Row total**
Poor	25 (31)	25 (19)	50 (50)
Poor - standard	12 (13)	9 (8)	21 (21)
Standard	31 (25)	9 (15)	40 (40)
Standard - advanced	13 (9)	2 (6)	15 (15)
Advanced	2 (4)	4 (2)	6 (6)
	63%	37%	132 (6 missing)

Appendix F Printed database records.

1) Vacant property or single tenancy form
2) Investment property main form
3) Investment property tenancy form
4) Hypothetical tenancy form
5) Metadata form

All records shown are dummy records.

Fi) Vacant transaction or single property form

Office Comparable Database Records.

Comparable id	110		
Floor. room etc		Property Name	
Property number		Street name(s)	
Locality		Town/City	
County		Region	
Postcode			
Type of transaction		Date of transaction	

Capital price\ Size\ Accommodation

Capital Price		Yield %	0	Yield type	
Total size (m2)		Number of floors		Lavout	
Breakdown	Ground		First		Second		Third		Other	
Construction		Date built/refurbished	
Covered Parking Spaces		Uncovered Parking Spaces		Payment for spaces	
Air conditioning		Sprinklers		Under floor trunking		Suspended Ceiling	
Heating		Alarms		Reception area		Toilets	
Lifts		Overall quality	

Rent agreed \ Lease Terms

Rent		Rent/m2		Full market rent?	☑
Rent Breakdown	Basement		Ground		First		Second		Other	
Lease commencement date		Rent Review	
Rent review clause		Details of hypothetical tenancy	
Length of Lease (Years)		Review pattern	
Upward only reviews		Rateable value		External repairs	
Internal repairs		Insurance	
Fixtures and fittings		User clause	
Alienation clause		Service charge	
Affect of SC		Break clause	
Outside Landlord and Tenant Act 1954		Strength of tenant covenant	

Incentives, Marketing and Additional Information

Rent free period		Duration of period		Reason	
Premium		Reason for premium	
Reverse premium		Reason for reverse premium	
Capital Incentives	
Active marketing?		Length of marketing?		Arms length deal?	
Lessor		Lessee	
Recording surveyor		Recording firm	
Tel, Fax + E-Mail	
Additional comments	

Fii) Main Investment form record

Office Comparable Database Records.

Comparable id	110	Date recorded	16-Oct-98

Address

Floor, room etc	
Property Name	
Property number	
Street name(s)	
Town/City	
County	
Postcode	
Region	

Transaction details

Type of transaction		Date of transaction	
Number of tenancies		Go to/add individual tenancy details	

Capital price\ Size\ Accommodation

Capital Price		Yield	0	Yield type	
Total size (m2)		Number of floors		Layout	
Ground		First		Second	
Third		Other			
Construction		Date built/refurbished			
Capital Incentives					
Active marketing?		Length of marketing?		Arms length	

Recording details

Lessor		Lessee	
Recording surveyor			
Recording firm			
Tel, Fax + E-			
Additional comments			

Fiii) Related individual tenancy form

Office Comparable Database Records.

Comparable id	110		
Floor. room etc		Property number	
Property Name			
Street name(s)			
Town/City		Postcode	
Type of transaction		Date of transaction	

Rent agreed \ Lease Terms

Rent		Rent/m2		Lease commencement date	
Rent Review		Rent review clause			
Details of hypothetical tenancy					
Length of Lease (Years)		Review pattern			
Upward only reviews		Rateable value		External repairs	
Internal repairs		Insurance			
Fixtures and fittings		User clause			
Alienation clause		Service charge			
Affect of SC		Break clause			
Outside Landlord and Tenant Act 1954		Strength of tenant covenant			

Size and Accommodation

Size(m2)		Number of floors		Lavout	
Covered Parking Spaces		Uncovered Parking Spaces		Payment for spaces	
Air conditioning		Sprinklers		Under floor trunking	
Suspended Ceiling					
Heating		Alarms		Reception area	
Toilets					
Lifts		Overall quality			

Incentives, Marketing and Additional Information

Rent free period		Duration of period		Reason	
Premium		Reason for premium			
Reverse premium		Reason for reverse premium			
Active marketing?		Length of marketing?		Arms length deal?	
Lessor		Lessee			
Recording surveyor		Recording firm			
Tel, Fax + E-Mail					
Additional comments					

Fiv) Hypothetical Tenancy form

Hypothetical tenancy

Comparable id:	110	View recording instructions	
Willing Landlord:		Details :	
Willing Tenant:		Details :	
Vacant Possession:		Details :	
Upward only reviews:	yes	Details :	
Any variance in Term:	No	Details:	
Any variance in User clause:	yes	Details :	
Any variance in Alienation clause:	yes	Details :	
Tenants improvements disregared:	yes	Details :	
Goodwill disregarded:	yes	Details :	
Tenants occupation disregarded:	yes	Details :	
Restrictions on rent disregarded:	yes	Details :	
Fit for immediate use and occupation:	no	Details :	
No works which diminish value:	yes	Details :	
Fire rebuilt:	no	Details :	
Tenants covenants performed:	yes	Details :	Hello there

Any other relevant information:	

Appendix G Office comparable database instructions

Appendix Gi) Comparable query instructions

Comparable query instructions for Access version 7 within windows 95.

Within Access version 7 you can produce two types of query. Complex queries whereby you type in the criteria yourself and simpler queries where you select criteria from drop down menu's that appear within each field on the database form. To undertake the more complex search, although this will rarely be necessary, open the form entitled **Comparable query instructions.** it is advisable to read this form for background information on producing queries. To use the simpler query by form search read the instructions below.

Querying by form.

From the database form click on **design comparable search** from the menu bar at the top of the screen. From the white menu bar at the top of the next screen click on **View** and from the drop down menu select **Filter by form**. Clicking filter by form will return you to the database form with the difference being that the form is blank and the field names are now in Grey rather than black to indicate that they are not active.

Choose the first field that you wish to query and click in the box next to the field name. the field name will now turn black and an arrow indicating a drop down menu will appear in the box. Clicking on the arrow activates a list containing all entries that appear within that field throughout all records contained in the database. For example clicking in the Street name filed will activate a list that contains the street names of all records contained in the database. The names are displayed in alphabetical order to ease use. Click on the street name you wish to retrieve and that street name is pasted into the Street name field. To search for all records on Grey street, Newcastle upon Tyne you would select Grey street from the list of street names and then Newcastle upon Tyne from the list that appears when you click in the City field. To activate the search click on **search for records** on the Grey menu bar. The full records that match the search criteria are displayed and you can move between records using the navigation bar that is situated towards the bottom of the screen.

You can search as many fields as required by simply selecting the criteria from each drop down list in each specific field. If the criteria you require does not appear in the drop down list then no records in the database match the criteria.

Not only can you search for specific names or drop down menu items (for example searching the Type of transaction field will provide the 5 transaction type options to choose from and you simply select the transaction type(s) you wish to retrieve) but also for numbers and ranges of numbers. For example you could click in the size field and type "between 100 and 500" which would retrieve records with a floor area of between 100 and 500 m2. Or in the date of entry field you could enter "<12-sep-96" which would retrieve all records recorded before 12 September 1996.

Within one or more fields you may wish to search by more than one specific criteria. If this is the case then you use the OR command situated towards the bottom of the screen in a card index type layout. Using Type of transaction as an example you may wish to search for Lease renewal or New leases but ignore capital transactions, rent reviews and assignments. To do this you would click in the Type of transaction field and select Lease renewal from the drop down list. You would then click on the OR command at the bottom of the screen go back to the Type of transaction field and click on New lease. Access will then search for Lease renewals OR New leases in the type of transaction field. You can repeat this process for as many criteria as you wish and for as many fields as you wish.

Search examples

You may use * before of after text to mean effectively "and anything else". For example typing "NE1*" in the postcode field would retrieve any records in the NE1 area of Newcastle or typing "*Brown" in the Street name field would retrieve any records with Brown in the street name field e.g. Brown street, Brown Road, Lower Brown Avenue, Browning Road etc.

Entering the following criteria in the appropriate fields would retrieve Leasehold transactions in Newcastle that occurred after 1 Jan 1995 with a size between 100 and 500m^2 and more than two covered parking spaces with an overall quality of accommodation greater than 3. The lease length will be between 15 and 25 years and subject to a break clause and have begun with a rent free period.

Town/City =	**Newcastle upon Tyne** (select from drop down menu)
Type of transaction =	**<>Capital** (Typing <> means NOT so retrieves all transactions except for Capital transactions)
Date of transaction =	**> 01-Jan-95** (retrieves all transactions taking place after 1 Jan 95)
Size =	**between 100 and 500** (Typing this retrieves all records with a size of between and including 100 and 500m^2
Covered parking spaces =	**>2** (Retrieves all records with more than 2 parking spaces)
Overall quality =	**>3** (retrieves all records with an overall quality greater than 3)
Length of lease =	**Between 15 and 25** (Typing this retrieves all records with a lease length between 15 and 25 years)
Break clause =	**<> No break clause** (Selecting No break clause from the drop down menu and adding <> before the text will retrieve all records containing break clauses.
Rent free period =	**Yes**

Appendix Gii) Summary report instructions

Producing a summary report of query search results.

As part of the query search options the database allows for the viewing and printing of a summary report of the retrieved comparable records. For example, if a search retrieves 15 records you may wish to print a summary of each record in order to determine which records you wish to investigate in more detail.

In order to produce such a summary report follow the instructions below:

1. As with a normal query search enter the comparable query page by clicking on the *Design Query Search* button from the main database form.
2. In the comparable query screen click on FILE from the menu bar and click on LOAD FROM QUERY.
3. Choose the COMPARABLE QUERY option from the applicable filters list.
4. The query screen will appear. Enter the search criteria in the criteria boxes of the appropriate field(s). If the required field does not appear in the available fields then select it from the box above containing a list of all the fields. Drag the field name down into an empty query field and then enter the criteria as normal.
5. When the query is complete click on the FILE menu and click on SAVE AS QUERY from the drop down menu.
6. When prompted to Save as, enter the name **output** into the save as box. It is important only **output** is entered in this save as box.
7. When prompted with the message Do you wish to replace the existing output click on YES.
8. To view the selected records click on the *Search for records* button. This will show the retrieved records in their entirety, as with any normal query search. To produce the report click on the *Report* button from the menubar. This will produce the summary report of the comparables retrieved in print preview view. Each comparable appears on a separate page. To print the report click on FILE and PRINT. To print the whole report click on ALL and click OK. To click a particular page or pages use the PAGE(S) option.
9. To close the report click on FILE and then CLOSE. This will take you back to the main database form screen.

Appendix Giii) Overall quality field ratings description

This field allows for a description of the overall quality of the property's accommodation. Although such descriptions are subjective, a five point rating scale on which to measure the quality makes the process slightly more objective. The five point rating scale is as follows with **5** the **lowest** and **1** the **highest**

Rating	Description
5	Very basic accommodation in poor condition with few, if any, services .
4	Basic accommodation in reasonable condition with a few basic services.
3	Average accommodation of an acceptable condition with all the basic services expected of an office property.
2	Good quality accommodation in a good condition with all basic services and a few extras and good IT service provision in place.
1	Excellent quality accommodation in an excellent condition with all basic and many additional services with substantial IT service provision in place.

Select the rating which most closely describes the quality of accommodation and enter into this field. This field may be searched in the same way as other numbers fields

Appendix H Database evaluation

Appendix Hi) Evaluation tutorials

Recording a comparable record

You have just completed fictitious negotiations for a new lease and the transaction details are now ready to be recorded into the office comparable database. The transaction details are as follows:

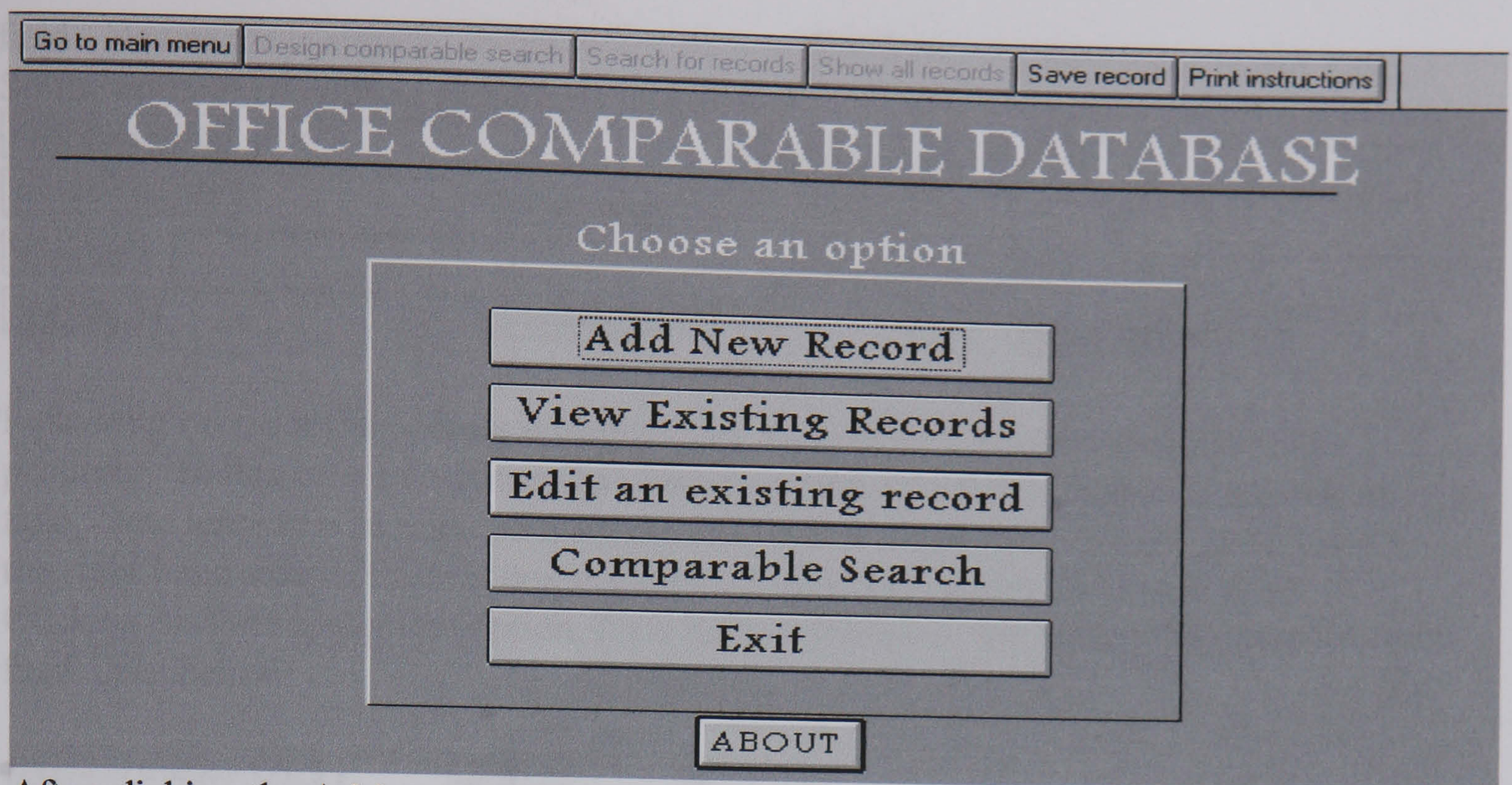
Date of contract exchange; 3 March 1997
Address; Floor 3, Bruce House, Grey Street, Newcastle-upon-Tyne. NE1 7EA
The property is 254m^2 (27,33ft^2) on one floor with mainly open plan accommodation but some partitioned sections. The property was constructed of load-bearing brick with stone block facing around 1860 and refurbished in 1987. The lease allows for one covered parking space the value of which is reflected in the passing rent. Services include air conditioning, suspended ceiling, heating and alarms. There are male and female toilets but no lifts. The passing rent will be £16,000 pa after an initial rent free period of 3 months. There are no other lease incentives. The lease is due to commence on 20-Nov-96 for a term of 25 years with upward only rent reviews at 5 yearly intervals. Other lease covenants include an internal repairing and insurance obligation, assignment or subletting of the whole of the property with the landlords written permission and use restricted to offices. The premises were fully fitted with services. Office hours are restricted to between 8.00am and 6.30pm. The service charge payable to cover external repairs and maintenance of common entrance areas is £1,500pa which covers all the landlords expenditure. The property was actively marketed for a period of 6 months and there was no relationship between the two transacting parties.

Stage 1. Accessing the Office Comparable Database.

Within the programme manager of Windows double click on the Office Comparable Database icon shown below or open the INVDATA.mdb file in access.

Stage 2. Adding a new record.

Accessing the database automatically brings up the main menu screen after an initial information form. This screen provides five options to choose from. Click on **About** to read the aims of the database and general instructions on its use. The **Add new record** button allows the addition of new comparable records into the database. Click on this button.



After clicking the **Add new record** button a screen will appear giving you the option of reading the data input instructions or proceeding directly to data input. These instructions provide an overview of the various data fields used in the database and how to enter data within these fields. Click on the **Yes** button to read these instructions.

Stage 3. Entering the data.

After closing the data input instructions screen, the main database form appears. This is the form into which data is input and also the form in which the data is presented and can be printed.

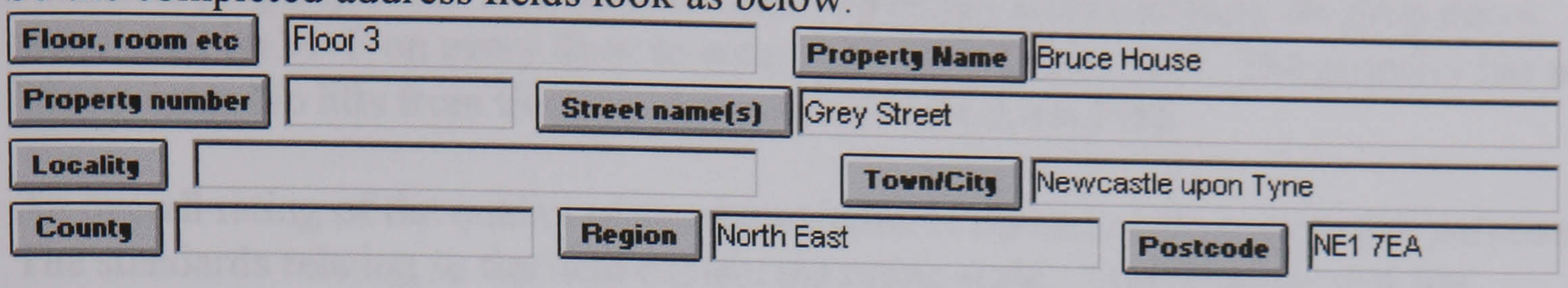
The first data field is the **Comparable id** field. This is automatically entered and can be used to link the record to any related external files.

The address of the property is the next data item. At the top of the database form is the **Address information** button. This provides general details of how to record the address and the problems of using an address to reference a property. It is advisable to read this before continuing.

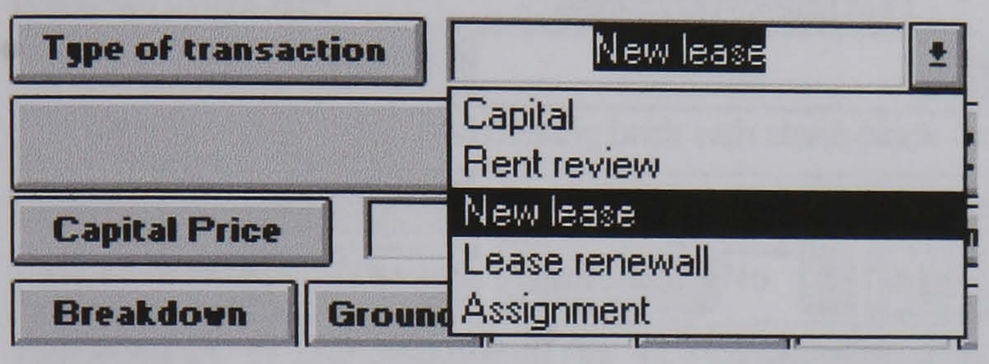
The address of the property is recorded in eight separate fields. Firstly there is the **Floor, room etc.** field. Clicking on the field name brings up the standards associated with the recording of the information. It is advisable to read these standards before continuing. For recording the transaction details above Floor 3 needs to be recorded into this field. To move to the next field either press return, the right arrow key or click in the white box. To move back a field use the left arrow key or click with the mouse. The next field is the **Property name** field. Click into the text box next to the field name and type in the text Bruce House. Thirdly there is the **Property number** field but this can be left blank as there is no number associated with the address.

The **street name and identifier** field records the street name of the property. In this case it is straightforward i.e. Grey Street. Moving on to the **Locality** field, the property does not have a named locality so this field can remain empty. Newcastle-upon-Tyne can be entered into the **Town/City** field and the postcode, NE1 7EA, into the **Postcode**

field. Newcastle is situated in the North East so in the **Region** field enter North East. So the completed address fields look as below.



Following on from the address information is the type of transaction involving the property. In this case a new lease has been negotiated so in the **Type of transaction** field, New lease can be selected from the drop down menu. Clicking on the arrow on the right hand side of the text box displays the options available to choose from. Clicking on the appropriate option, New lease in this case, will record the option into the field. See below:



The next field is the **Date of transaction** field. This records the date on which the transaction was formally completed. In this case it is3-March-1997 so 3-Mar-97 is recorded into the field.
The next section involves the recording of the physical characteristics of the property. As this is a leasehold transaction the **Capital price** field can be left blank. Size is the next detail and this is the total size in square metres. In the **Size** field enter 254. The property is comprised of a single floor, floor 3, so in the **Number of floors** field enter 1. As the property consists of only 1 floor there is no need to enter a breakdown of the size in the **Breakdown** fields.

The **Layout** field records the layout of the property's accommodation. In this case the property is mainly open plan but there are some partitioned areas. This field has a drop down menu so from this menu select Mainly open plan, but some partitioning. The **Construction** field is served by a drop down menu so select the appropriate response from the menu. In this case assume it is load-bearing brick with stone block facing. Next enter the property's date of construction followed by its refurbishment date (Click on the field name for more information). In this case the construction date is 1860 and the property was refurbished in 1987 so enter 1860/1987 in the **Date built/refurbished** field.

The property has one covered parking space allocated within the lease and the value of this space is reflected in the rent. Enter 1 in the **Covered parking spaces** field and in **Payment for spaces** field from the drop down menu enter Within rent.

The next seven items record the service provision within the property. Each field is served by a drop down menu containing three options. YES if the service is present, NO if the service is not present and DN if it is not known whether the service is present. The property has **Air conditioning, Suspended ceiling, Heating** and **Alarms** so click

the YES entry for each of these fields. The remaining services are not available so click NO. The property is serviced by both male and female toilets so from the drop down menu click on M+F on every floor to enter this in the **Toilets** field. The property has no lifts so enter No lifts from the drop down menu in the **Lifts** field.

An overall rating of the quality of accommodation is necessary for comparable purposes. The standards relating to the field explain the rating scale. You calculate that the accommodation deserves a three on the rating scale so 3 is entered into the **Quality of accommodation** field.

The Capital price/Size/Accommodation section is shown below.

The third section records the legal characteristics of the property. Firstly record the passing rent under the lease in the **Rent** field. The rent in this case is £16,000pa so enter 16000 into the field, the currency and comma are entered automatically. Clicking on the **Rent per m2** field name will access a screen which will convert the rent passing per annum screen into a rent per m2 figure. This figure can then be entered into the rent per m2 field. The next field asks how a rent at a rent review was settled, but this is not applicable in this case so it can be left blank. In the **Lease commencement date** field record the date 7-Mar-97 as that is the date contained in the lease. Next enter the length of the term into the **Length of lease** field . In this case it is 25 years so select 25 from the drop down menu. This is followed by the **Review pattern**. Again this field has a drop down menu so select Every 5 years as the review frequency. The **Upward only rent review** field is served by a YES, NO, DN menu and as the provision in the lease allows for upward reviews only select the YES response.

The repairing covenant field is split into three parts. Firstly the **External repairs** field asks you to select who is responsible for expenditure on external repairs. With the lease being an IR and I lease the landlord is responsible for external repairs so from the drop down menu select Landlords responsibility. The **Internal repairs** and **insurance** fields operate in the same way. This time the tenant is responsible for both items of expenditure so select Tenants responsibility from both drop down menus. The next item reflects the condition in which the property was let. In this case the property was let fully fitted with services so select this item from the drop down menu to record it into the **Fixtures and fittings** field. The **User clause** field is also served by a drop down menu. In the case of this property the use is restricted to the current use as offices so from the drop down menu select Restricted to current use as offices. The options available from the drop down menu for the **Alienation clause** field should be read by

accessing the standards. In this case assignment, underletting and subletting of the whole of the property is allowed with written permission of the landlord. From the options in the drop down menu select Assignment of whole. Need permission.

There is a service charge payable under the lease for the maintenance of common areas and external repairs. Click on the £ from the drop down menu and click after it in the box and type in 1,500 to record £1,500 into the **Service charge** field. The service charge recovers all the landlords expenditure on external repairs so select an entry from the drop down menu to reflect this. If there is a break clause(s) contained within the lease then enter the appropriate option from the drop down menu into the **Break clause** field. In this case the landlord or tenant can exercise a break clause at each review date so select the appropriate item from the drop down menu. If the lease excludes the tenancy from protection under the Landlord and Tenant Act 1954 then select Yes from the drop down menu serving the **Outside Landlords and Tenant Act 1954** field. In this case it is not so select NO. The **Strength of tenant covenant** is served by a five point rating scale. Read the standards for guidance for the use of this scale. In this case you know that the tenant is a new, medium size firm but has a strong client base so a rating of 3 can be given.

The Rent Agreed/Lease terms section is shown below.

Rent agreed \ Lease Terms

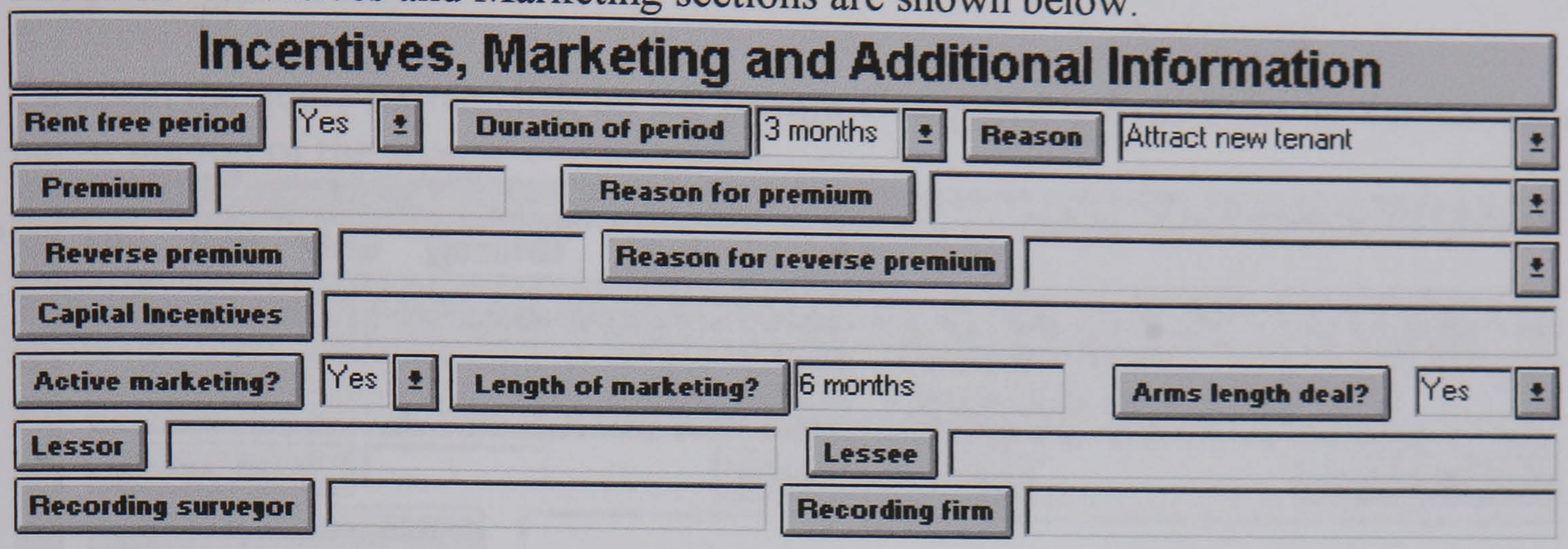
Rent	£16,000	Rent/m2	£62.99	Lease commencement date	20-May-96		
Rent Breakdown	Basement		Ground		First	Second	Other
Rent Review			Rent review clause				
Details of hypothetical tenancy							
Length of Lease (Years)	25		Review pattern	Every 5 years			
Upward only reviews	Yes	Rateable value		External repairs	Landlords responsibility		
Internal repairs	Tenants responsibility		Insurance	Tenants responsibility			
Fixtures and fittings			User clause	restricted to current use as offices			
Alienation clause	Assignment of whole. Need permission		Service charge	£1,500			
Affect of SC	Recovers all L/L expenditure		Break clause	No break clause			
Outside Landlord and Tenant Act 1954	No		Strength of tenant covenant	3			

Moving onto lease incentives involved in the transaction, the first lease incentive to record is the existence of any rent free periods. For this tenancy a period of 3 months was offered rent free at the beginning of the lease before reverting to the £16,000 rent. Select YES from the drop down menu serving the **Rent free period** to indicate there is a rent free period and then select 3 months as the length of the period and record it in the **Duration of rent free period** field. You know from the dealings that the reason for the rent free period was to attract a tenant in poor market conditions so from the drop down menu select Attract new tenant to record into the **Reason** field. There are no further lease incentives so the remaining fields in this section can be left blank.

The marketing history section records how, or if, the property has been marketed. This property was marketed so record YES into the **Active marketing?** field. The leasehold interest was actively marketed for 6 months prior to the transaction being agreed so enter 6 months into the **Length of marketing** field. The deal was an arms length deal

so enter yes in the **Arms length deal?** field. For more information and a definition of active marketing read the standards associated with the marketing history fields.

The Lease incentives and Marketing sections are shown below.



Finally; any additional information relating to the transaction can be recorded into the **Additional comments** field. In this case office hours are restricted to 8.00am to 6.30pm Monday to Friday so record this information. Record your name as the **Recording surveyor** and your firm as the **Recording firm** in case any further information is required by a subsequent user of the comparable evidence.

This completes the recording of the comparable record. To print the record click on the **Print Record** at the top of the form. The record prints in the same form as it is displayed on screen.

The comparable transaction is automatically saved as each field is recorded. Once the recording has finished click on the **Main menu** button on the toolbar to return to the main menu. This will save the record and add it to the other database records.

Comparable query examples

This section outlines examples of simple query searches which can be used to retrieve comparable transactions that satisfy certain specified criteria. It provides two examples of query searches and talks through the procedure stage by stage.

Stage 1. Accessing the database.

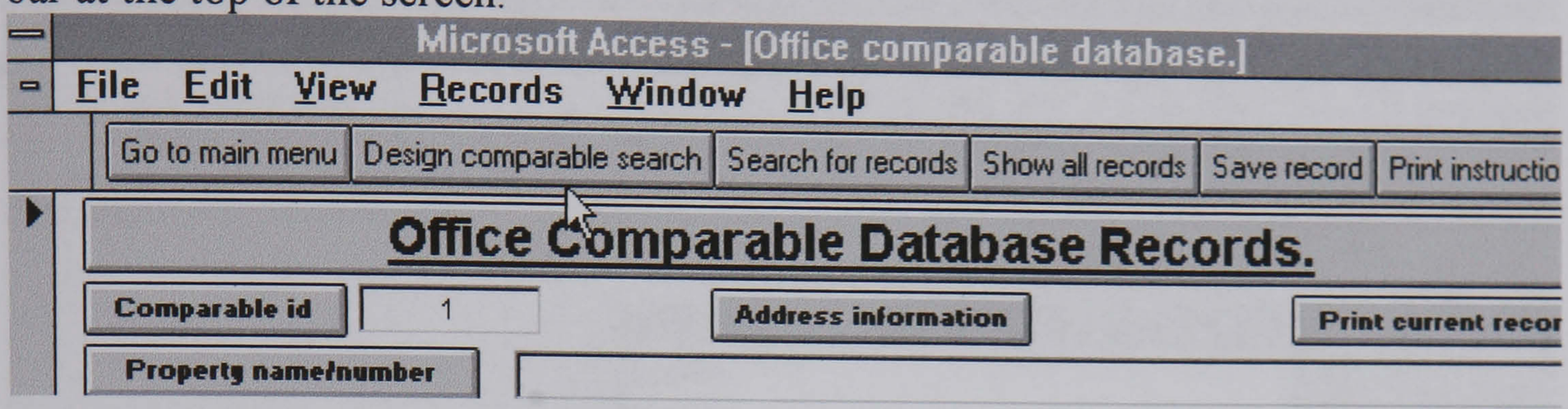
Access the Office Comparable Database from the Windows programme manager by double clicking on the icon shown below.

Stage 2. Creating a query search.

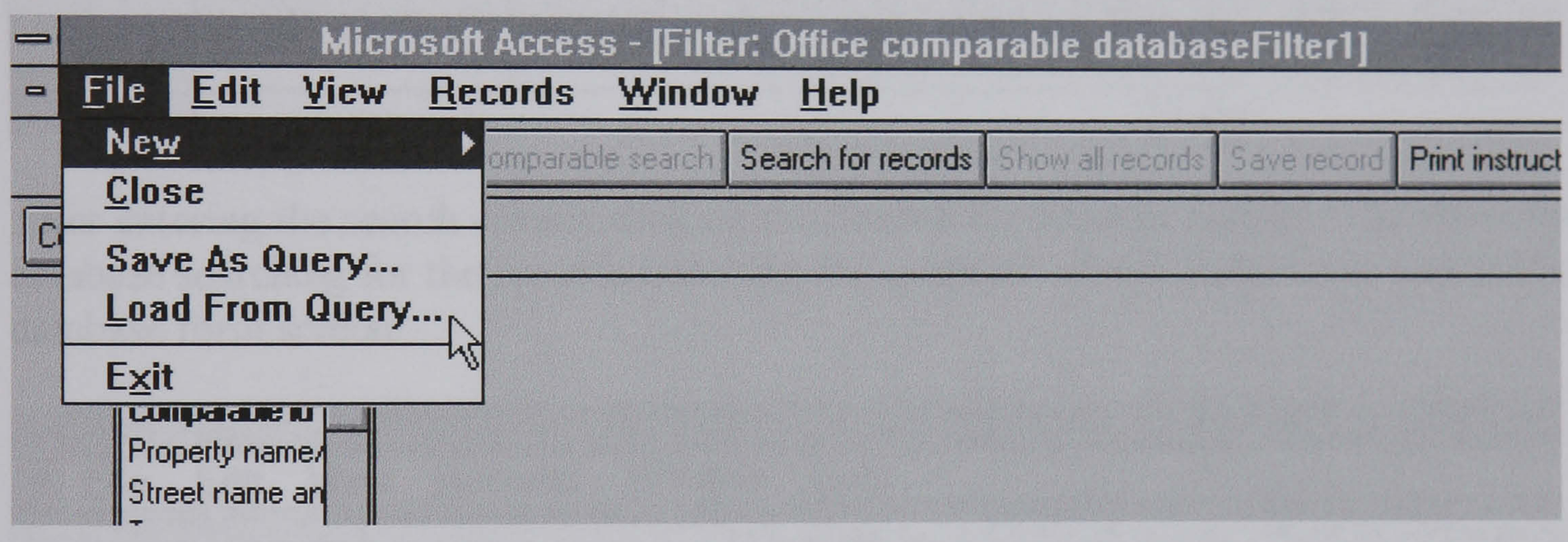
From the main menu screen of the database click on the **Comparable search** button. A screen will appear giving you the option of reading the comparable search instructions or

continuing straight on with the comparable search. Click on **Yes** to read the search instructions which explain the fundamentals of undertaking a query search. After reading and closing the screen the database will open the database form which contains all the comparable records.

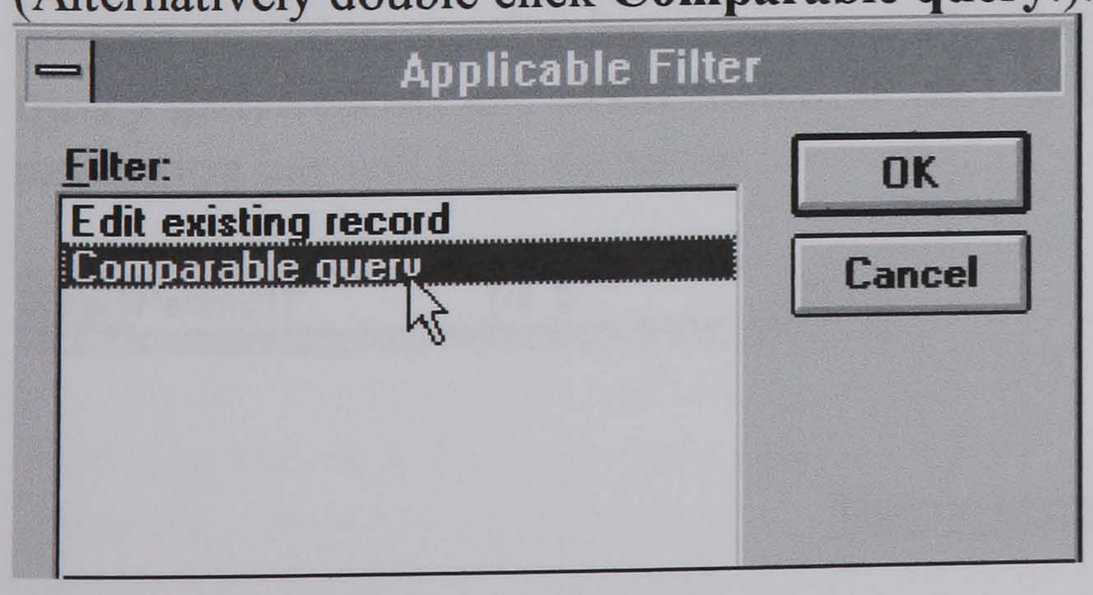
To begin the query search click on the **Design Comparable Search** button on the menu bar at the top of the screen.



This will access the filter screen. To open the Comparable query screen, in which the query searches are designed, click on **File** on the white menu bar and from the drop down menu click on **Load from query.**

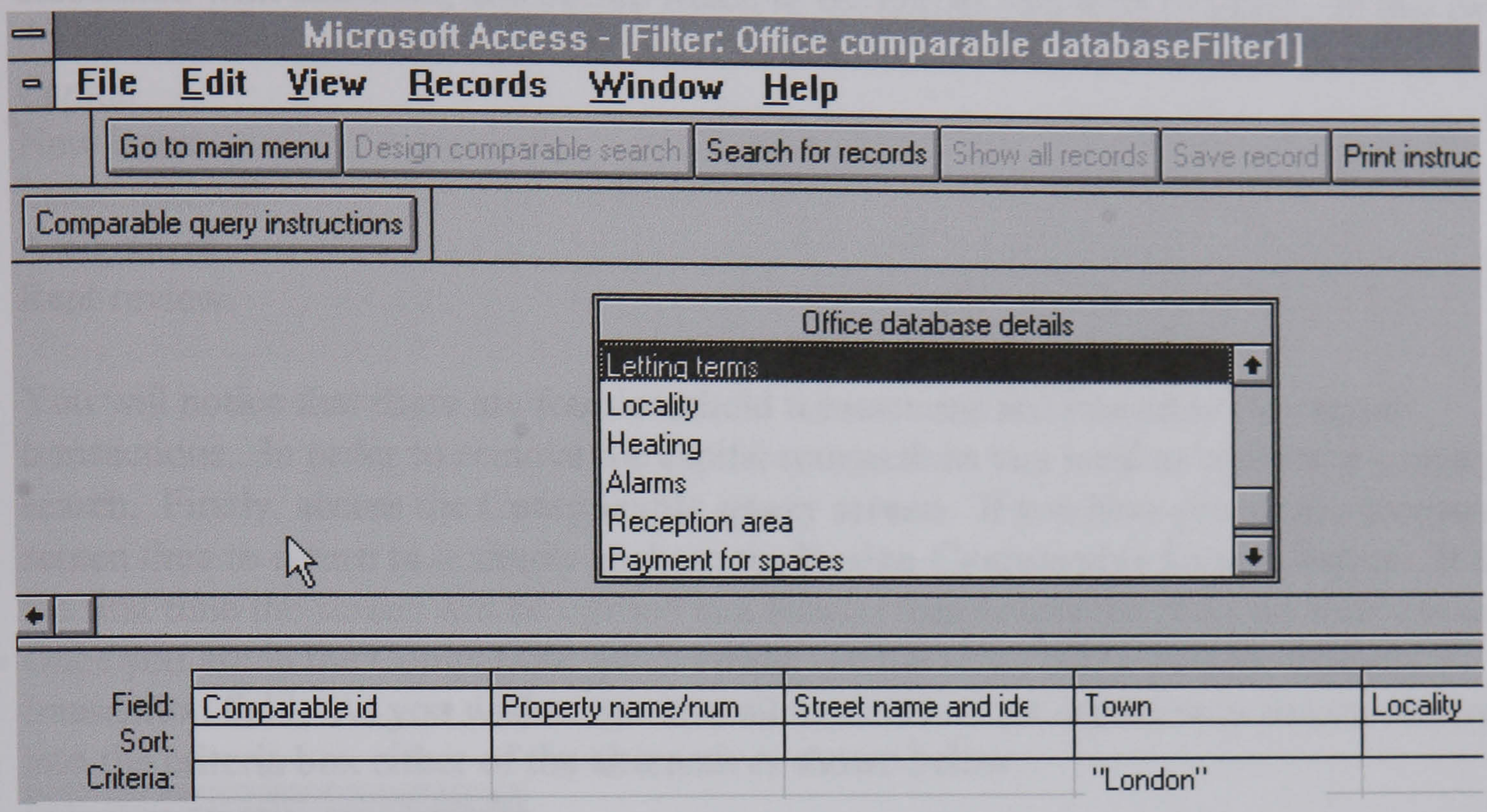


After clicking **Load from query** an **Applicable filter** box appears. The box provides two queries to choose from. Click on the **Comparable query** option and then click **OK** (Alternatively double click **Comparable query**.).

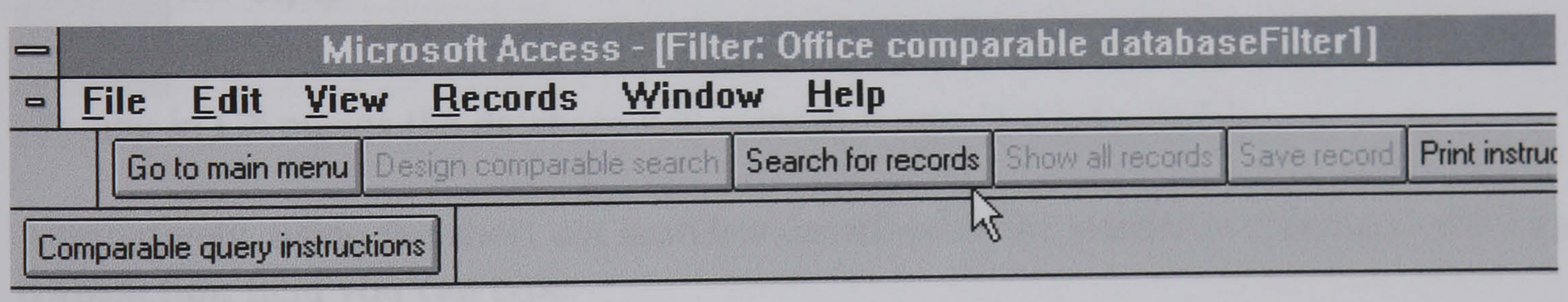


The will bring up the **Comparable query screen**. This procedure only needs to be undertaken the first time you wish to undertake a query search at each database sitting. The comparable query screen will remain accessible by clicking on the **Design Comparable**

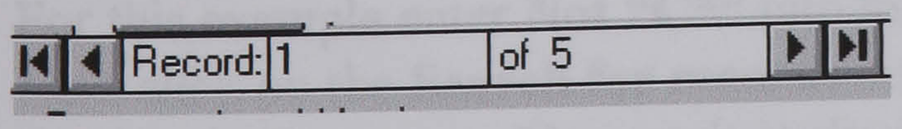
Search button in the database form screen. The Comparable query screen provides a table which contains all the comparable fields within the database form (60 in all) any of which may be queried. A query can be made up of specifying criteria in one or more of these fields. In the example below "London" is entered under the town field. This has the effect of retrieving all comparable records with London in the Town/City field of the database.



After entering the search criteria click on the **Search for records** button. This starts the database searching for the records matching the specified criteria and returns you to the database form screen.



All the records retrieved by the database are displayed in this form. By viewing the navigation bar at the bottom of the screen you can see how many records have been selected. You can scroll through these records to view or print them using the arrow buttons on the navigation bar (For more information on printing view the **Comparable query instructions** and **print instructions**.) If the database retrieves 5 records then the navigation bar will look as below.



Query examples.

1. Querying by transaction type.

Access the comparable query screen as previously described.

Both capital and leasehold office transactions are contained within this database. A starting point for many searches will be to remove any of the unwanted transaction types. For example, if you are searching for comparables to extract rental evidence you will not wish to retrieve capital transaction records. To route out capital records you would query the **Type of transaction** field. Look at the options available from the drop down menu associated with that field, and decide which of the entries you wish to select. In this case the field contains five different entries.
Capital
New lease
Lease renewal
Assignment
Rent review.

You will notice that there are four leasehold transactions and one entry for capital transactions. In order to remove the capital transactions you need to undertake a query search. Firstly, access the **Comparable query screen**. If you have previously accesses the screen then to return to it simply click on the **Design Comparable Search** button. If this is the first time the screen will be opened in a session then follow the previous instructions. Once you are in the Comparable query screen use the scroll bar to find the type of transaction field. As you wish to retrieve all records but not capital records you can enter into the criteria box either of the alternatives shown below.:

Field:	Type of transaction	Da
Sort:		
Criteria:	Not Like "c*"	
or:	Not "Capital"	

(Typing in C* means the database will convert it into Not Like "C*")

Alternatively, using the short cut searches described in the standards relating to the **Type of transaction** field you can type:
N* OR L* OR A* OR R*
The database converts this into
Like "N*" OR Like "L*" OR Like "A*" OR Like "R*"
This will retrieve all entries but not Capital. If you wished to leave out Assignments you would type:
Not C* OR A* (Converted to Not Like "C*" OR Like "A*")

For this example enter **Not "C*"** into the criteria box of the **Type of transaction** field. Next click on the **Search for records** button. This will return you to the database form. Previously there were 20 records in the database and now you will notice there are 28. Scrolling through these records you will see that no Capital transactions remain in the database. These records are hidden but can be retrieved at any time by clicking the **Show all records** button.

2. Search by address.

Location is an important search criteria in the retrieval of comparable evidence. A search can be undertaken using any of the address constituents.

i) Town/City field.

You have removed all the Capital transactions from the database and now you wish to select all the leasehold transactions in the City of Newcastle-upon-Tyne. In the **comparable query screen** click in the criteria box of the Town/City field. To retrieve all the Newcastle records you need to enter:
Newcastle* (Converted to Like "Newcastle*")
The * is used because Newcastle may be entered as Newcastle or Newcastle-upon-Tyne and just typing Newcastle will not retrieve all the records. An alternative is to use the postcode to select the Newcastle records. Entering NE* will retrieve all Newcastle records that contain a postcode in the address.
In this case type **Newcastle*** in the **Town/City** field.

After typing the text, click on the **Search for records** button. You will notice that only 20 records remain and if you scroll through these records you will notice that Newcastle appears in the town/city field in every case, all other records have been hidden.

ii) Search by street.

You now wish to narrow the search down to two particular streets in Newcastle. The two streets selected are Grey Street and Grainger street. Access the **comparable query screen** and in the **Street name and identifier** field type **"*Grey Street*" OR "*Grainger Street*"**. * is used to allow for any other street names being entered into the field (See street name and identifier standards for more details). Click on the **Search for records** button. You will notice that there are now only 8 records remaining, all located in either Grey Street or Grainger Street.

3. Search by size.

You have narrowed the database down to 5 records and now you wish to eliminate any records which are not comparable in size. Any records outside the range 200-400m^2 will be removed from the database. Return to the comparable query screen and scroll to the **Size** field. In the size field you need to use a **between** command. Enter in the size field:
Between 200 and 400

Click on the **Search for records** button. 4 records now remain, each with a size between 200m^2 and 400m^2.

4. Search by lease terms.

The next step is to use lease terms to narrow the search even further. You wish to locate properties with leases of between 20 and 25 years in length with 5 yearly, upward only rent reviews. Access on the **comparable query screen** and in the **length of lease** field enter:
Between 20 and 25
This retrieves 2 records.

In the **Review pattern** field enter:
Every 5 years (Or **Every 5***)

Click on **Search for records** and now only 1 record remains.

So the entire search was as follows:
Type of transaction = **Not capital**
Town/City = **Newcastle**
Street name = **Grey Street or Grainger Street**
Size = **200-400m^2**
Length of lease = **Between 20 and 25 years**
Review pattern = **5 years**

Of course you can enter all the criteria at one visit to the comparable query screen but this example shows how a progressively more detailed search gradually reduces the number of records matching all the search criteria. This is effective if your initial search retrieves a large number of records and you wish to enter another search criteria to narrow the search. The normal procedure will, however, be to enter all the search criteria at the same time.

Another example.

Click on the **Show all records** button to retrieve all the comparable records. Access the **comparable query screen** and delete any search criteria that remain in the fields. Retrieve the following:

Leasehold transactions in Newcastle that occurred after 1 Jan 1995 with a size between 100 and 500m^2. It will have more than two covered parking spaces with an overall quality of accommodation greater than 3. The lease length will be between 15 and 25 years and subject to a break clause and have begun with a rent free period.

To carry out such a search you would enter the following criteria in the following fields:
Town/City = **Newcastle***
Type of transaction = **Not C***
Date of transaction = **> 01-Jan-95**
Size = **between 100 and 500**
Covered parking spaces = **>2**
Overall quality = **>3**
Length of lease = **Between 15 and 25**
Break clause = **Not No break***
Rent free period = **Yes**

You will notice that after clicking the **Search for records** button that 2 records remains that satisfies the above criteria.

Appendix Hii) Evaluation questionnaire.

Evaluation questionnaire for the office Comparable Database System

Introduction

This evaluation questionnaire is designed to follow the completion of the tutorials produced for the office comparable evidence database. Its objective is to examine various aspects of the database to identify where modifications can be made in order to improve its overall performance. The questionnaire covers the following areas:-

Existing databases
Existing in-house databases
Problems of existing in-house databases

New database
Ease of data entry
Quality of recording standards
Quality of query searches
Data provision
Comparison with existing database
Areas for improvements

The majority of the questions require only the ticking of the appropriate box hence the questionnaire only takes a few minutes to complete. If you could spend the time filling in this questionnaire I would be most grateful.

Evaluation questionnaire

Section 1. Existing database

1. Does your firm have a computerised comparable database system specifically for recording transaction details?

☐ YES ☐ NO

2. Is this database used in combination with a paper filing system?

☐ YES ☐ NO

3. How comprehensive are the comparable records contained within the database?

☐ Very comprehensive
☐ Comprehensive
☐ Reasonable
☐ Basic
☐ Very Basic

4. How easy is it to record transaction details within the database?

☐ Very Easy
☐ Easy
☐ Reasonable
☐ Hard
☐ Very Hard

5. How easy is it to retrieve transaction details from the database?

☐ Very Easy
☐ Easy
☐ Reasonable
☐ Hard
☐ Very Hard

6. Please tick the following problems that you have experienced when using your comparable database.

☐ Difficulty in recording records
☐ Difficulty in retrieving records
☐ Difficulty in recording addresses
☐ Difficulty in retrieving records by address
☐ Incomplete records

☐ Time taken to record data

☐ General difficulty of use

Section 2. New database.

1. How do you rate the appearance of the main menu screen?

☐ Very Good

☐ Good

☐ Average

☐ Poor

☐ Very Poor

2. How do you rate the appearance of the main database form screen?

☐ Very Good

☐ Good

☐ Average

☐ Poor

☐ Very Poor

3. How do you rate the appearance of the printed database record?

☐ Very Good

☐ Good

☐ Average

☐ Poor

☐ Very Poor

4. How do you rate the overall quality of the instruction screens?

☐ Very Good

☐ Good

☐ Average

☐ Poor

☐ Very Poor

5. Did you need to use the data recording standards for clarification of what to record in a field?

☐ YES ☐ NO

If yes which field(s)

6. How do you rate the quality of the recording standards?

- ☐ Very Good
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Very Poor

7. How do you rate the ease of recording a transaction into the database?

- ☐ Very Easy
- ☐ Easy
- ☐ Reasonable
- ☐ Hard
- ☐ Very Hard

8. Did the drop down menu ease data entry:

- ☐ Significantly
- ☐ A small amount
- ☐ Not at all

9. Where there enough options within the drop down menus to cover all possible responses?

- ☐ Yes, in every case
- ☐ Yes, in most cases
- ☐ No, not in most cases
- ☐ No, not in any cases

10. Were the transaction details recorded within the database:

- ☐ Very comprehensive
- ☐ Comprehensive
- ☐ Reasonable
- ☐ Basic
- ☐ Very basic

11. How do you rate the ease of use of the comparable query mechanism?

- ☐ Very Easy
- ☐ Easy
- ☐ Reasonable
- ☐ Hard
- ☐ Very Hard

12. How do you rate the comparable query instructions?

- ☐ Very Good
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Very Poor

13. How do you rate the overall performance of the comparable database?

- ☐ Very Good
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Very Poor

Section 3. Improvements needed.

In the space below please comment on any improvements you think could be made to the database.

Section 4. Comparison between databases.

Please read each statement and tick the appropriate response.

Question	Response				
1. Is recording data	Much easier ☐	Easier ☐	About the same ☐	Harder ☐	Much harder ☐
2. Is recording data	Much quicker ☐	Quicker ☐	About the same ☐	Slower ☐	Much slower ☐
3. Is recorded data	Much more comprehensive ☐	More comprehensive ☐	About the same ☐	Less comprehensive ☐	Much less comprehensive ☐
4. Is recorded data	Much more accurate ☐	More accurate ☐	About the same ☐	Less accurate ☐	Much less accurate ☐
5. Is recorded data	Of much greater uniformity ☐	Of greater uniformity ☐	About the same ☐	Less uniform ☐	Much less uniform ☐
6. Are comparable query searches	Much easier ☐	Easier ☐	About the same ☐	Harder ☐	Much harder ☐
7. Are comparable query searches	Much more comprehensive ☐	More comprehensive ☐	About the same ☐	Less comprehensive ☐	Much less comprehensive ☐
8. Overall is the new database	Much easier to use ☐	Easier to use ☐	About the same ☐	Harder to use ☐	Much harder to use ☐
9. Overall is the database	Much better ☐	Better ☐	About the same ☐	Worse ☐	Much worse ☐

Section 5. Possible affect of the database on your firm.

If the new database was implemented within your firm would it:

Increase the efficiency of data collection?	Yes ☐	Maybe ☐	No ☐
Increase the efficiency of data recording?	Yes ☐	Maybe ☐	No ☐
Increase the accuracy of data recording?	Yes ☐	Maybe ☐	No ☐
Be of use to other departments?	Yes ☐	Maybe ☐	No ☐
Aid research?	Yes ☐	Maybe ☐	No ☐
Provide a basis for inter firm co-operation?	Yes ☐	Maybe ☐	No ☐

Thank you for your co-operation.
If you have any other comments please write them in the space below.

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